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ABSTRACTS OF TAEG PUBLICATIONS, 1972-1980.(U)

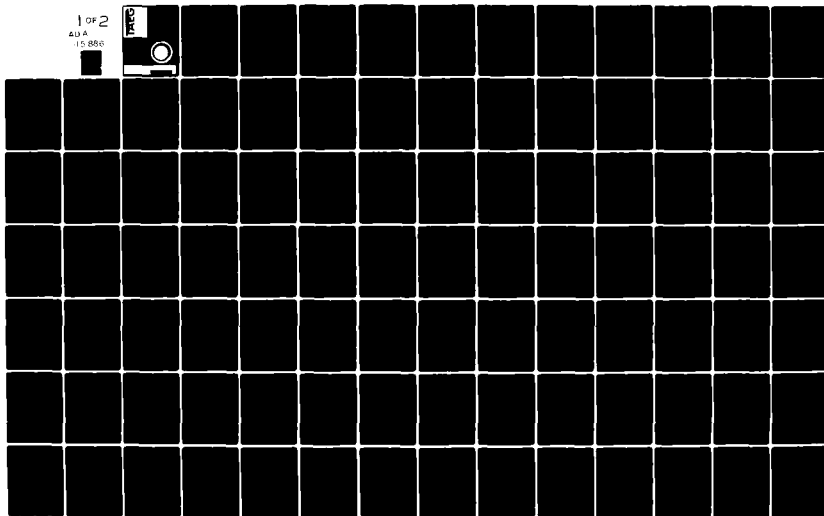
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TRAINING  
ANALYSIS  
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GROUP

TECHNICAL REPORT 120

(12)

**ABSTRACTS  
OF TAEG PUBLICATIONS  
1972-1980**

APRIL 1982

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TRAINING ANALYSIS AND EVALUATION GROUP  
ORLANDO, FLORIDA 32816

Technical Report 120

ABSTRACTS OF TAEG PUBLICATIONS  
1972-1980

Ann Caramico  
James A. Aagard

Training Analysis and Evaluation Group

April 1982

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This annotated bibliography contains abstracts of technical reports, memorandums, and notes reporting research conducted by the Training Analysis and Evaluation Group from 1972 through 1980.  The bibliography contains four indexes: author, title, keyword, and title by year.		

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### INTRODUCTION

The present volume is the first in a series which presents abstracts of documents published by the Training Analysis and Evaluation Group (TAEG). All technical reports, technical memorandums, and technical notes from 1972 to 1980 are listed. The synopsis of the studies in the present report is organized as follows. Abstracts of the technical reports are presented first, arranged consecutively by document number. These are followed by technical memorandums and technical notes, respectively. Presented next are four indexes (author, title, keyword, and title by year).

Documents are identified in the indexes by the number appearing in the left margin of each abstract entry. They are numbered sequentially from 1 to 157.

Abstract citations are organized to include:

- . author(s)
- . title of report
- . report number
- . report date
- . AD number (if applicable)
- . number of pages in the report.

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Certain reports have limited distribution and are not listed with DTIC or NTIS. Generally these reports deal with highly specific topics and, thus, interest is limited. In other instances, the sponsoring agency may elect to control the availability of the documentation. If the report does not have an AD number, write to Director, Training Analysis and Evaluation Group, Department of the Navy, Orlando, FL 32813 to ascertain the availability of a desired report.

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- 1 Braby, R., Micheli, G. S., Morris, C. L., Jr., and Okraski, H. C. Staff Study on Cost and Training Effectiveness of Proposed Training Systems. Technical Report 1, 1972, AD 748593. (86 pages)

The objective of this study was to begin developing and testing a method for predicting cost and training effectiveness of possible training programs. To meet this objective, a prototype Training Effectiveness and Cost Effectiveness Prediction (TECEP) Model was developed. It will eventually contain the following elements:

- . task description and analysis
- . characteristics of student population
- . training tasks and training stages
- . a method for determining useful media options
- . media cost factors
- . guidelines for substitution and transfer
- . training program of primary media and allowable substitutions
- . linear program to optimize for least cost
- . a report including economic analysis and recommendations.

The TECEP Model was applied to the TA-4 advanced jet training system to test the usefulness of the Model. The discussion of applying the Model to TA-4 training includes the following:

- . a training analysis
- . training media mix options
- . cost factors for the TA-4 aircraft and training media
- . TA-4 training system cost/training effectiveness.

(NOTE: Further development and refinement of the TECEP Model is reflected in TAEG Reports 16 and 23.)

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- 2     Michelli, G. S. Analysis of the Transfer of Training, Substitution, and Fidelity of Simulation of Training Equipment. Technical Report 2, 1972, AD 748594. (41 pages)

The findings of studies about the cost and training effectiveness of training devices are reviewed. Specific reference is made to those studies which address the relationship among transfer of training, cost, and fidelity of simulation.

- 3     Boudreaux, A. J., II, Henris, J. B., Hohman, G. W., Rankin, W. C., and Rogers, G. H. SSN Tactical Team Training System (U). Technical Report 3, 1972, AD 522919L. (185 pages)

This report describes a 688 tactical team training analysis and a plan for effective tactics training. The analysis identifies the need for several major training subsystem capabilities, including:

- . fire control equipment operator/fire control subteam training
- . sonar operator/sonar subteam training
- . coordinated tactical team training
- . approach officer/decision making training.

Report is confidential.

- 4     Lane, W. P., McElvenny, B. J., Stubbs, W. B., Moore, E. O., Jr., Pearson, T. E., and Bauer, L. R. Electronic Warfare Training Analysis. Technical Report 4, 1972, AD A086545. (170 pages)

An objective of this analysis was to evaluate whether it was feasible to consolidate electronic warfare training. The findings from this analysis indicate that it is both feasible and desirable to consolidate training for operators of air, surface, and subsurface EW equipment. The report contains a proposed curriculum for the consolidated training program and a description of a generalized operator training system. Actions for improving the effectiveness of existing EW training facilities are recommended.



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- 5     **Browning, R. F., Copeland, D. R., Lauber, J. K., Nutter, R. V., and Scott, P. G. Training Analysis of P-3 Replacement Pilot Training. Technical Report 5, 1972, AD 777428. (170 pages)**

This is the first of a series of reports dealing with P-3 pilot training systems.

This Phase I report covers an evaluation of current P-3 pilot training programs at the replacement squadron level. The report contains detailed discussions concerning training hardware and software that have been supplied to support P-3 pilot training. The report also examines in detail the curriculum, simulation capabilities, and use of P-3 operational flight trainers (Devices 2F69/2F69D). Along with the evaluation of current P-3 pilot training, a survey of present airline pilot training practices was made to find out how applicable these commercial training techniques are to military pilot training.

Remedial actions which might be taken to make immediate improvements in the cost-effectiveness of P-3 pilot training programs are recommended.

- 6     **Boudreaux, A. J., II, Hohman, G. W., and Rankin, W. C. Generalized Acoustic Sensor Operator Training: Visual-Phase I. Technical Report 6, 1972. (18 pages)**

The initial findings of a study to determine if it would be feasible and desirable to develop generalized acoustic sensor operator training are described. Air, surface, and subsurface acoustic equipment was studied to identify common characteristics in their functions and displays.

An acoustic system matrix was developed to detect any trends in equipment features. Phase II of this study will describe and specify a common core training system for acoustic sensor operators.

- 7     **Browning, R. F., Lauber, J. K., and Scott, P. G. Task Analysis of Pilot, Copilot, and Flight Engineer Positions for the P-3 Aircraft. Technical Report 7, 1973, AD 766445. (284 pages)**

This is the second in a series of reports concerned with improving P-3 aircraft pilot and flight engineer training.

A detailed job task analysis of the P-3 pilot, copilot, and flight engineer positions is presented.

A task analysis identified the behavioral activities of the P-3 flight crew

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positions during normal, abnormal, and emergency operation of the P-3 aircraft according to NATOPS procedures.

A training analysis based on the P-3 task data was conducted. Existing synthetic and in-flight training syllabi were modified for school tryout during phase II of the program. The training analysis application contains the method used in translating the task data into a program of instruction.

**8 Braby, R. An Evaluation of Ten Techniques for Choosing Instructional Media. Technical Report 8, 1973, AD 773456. (48 pages)**

Ten fundamentally different techniques appropriate for choosing instructional media for proposed Navy training programs were evaluated.

Six professional members of TAEG were assigned as training system designers. Each designer applied the chosen media selection techniques in a sample of seven representative Navy training tasks. The results of applying these techniques were examined by experts who judged how appropriately the media chosen met the task training requirements. These judgments served as the basis of ranking the techniques in terms of their usefulness in designing Navy training programs.

The ratings for the top three ranked techniques were essentially the same. Based on the ratings of these three techniques, none were clearly superior to the others. Because the TAEG technique ranked highest on the measures used, it was selected as the technique to be further developed.

Guidelines for developing TAEG's media selection technique are recommended.

**9 Pearson, T. E., Mac Keraghan, L. R., Stubbs, W. B., and Moore, E. O., Jr. Electronic Warfare Maintenance Training Analysis Executive Summary. Technical Report 9-1, 1974, AD A018445. (47 pages)**

This is an executive summary of an analysis of the training requirements for personnel assigned to electronic warfare (EW) equipment maintenance. Phase I of this study was to determine how feasible it would be to consolidate Navy EW maintenance training. Phase II developed in detail the characteristics of EW maintenance training. Such characteristics are pipeline, curriculum, training media, and instructional strategy. Guidelines for implementing consolidated EW Maintenance Training are given in TAEG Report No. 9-2, Electronic Warfare Maintenance Training Analysis.

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- 10 Pearson, T. E., Mac Keraghan, L. R., Stubbs, W. B., and Moore, E. O., Jr. **Electronic Warfare Maintenance Training Analysis. Technical Report 9-2, 1974, AD A019191. (344 pages)**

The second phase of an analysis of Electronic Warfare (EW) training is described. It also prescribes consolidating the Navy-wide pipeline for this type of training. While the initial effort, TAEG Report No. 4, Electronic Warfare Training Analysis (1972), deals with the EW operator problem, this study describes how feasible it would be to consolidate Navy EW maintenance training. It develops the characteristics of a consolidated EW maintenance training system. It provides a basis for costing the training system elements which later require going through procurement channels. Finally, it gives management the necessary detailed guidelines to start, design, apply, and manage all the elements of the recommended EW maintenance training system.

- 11 Browning, R. F., Ryan, L. E., and Scott, P. G. **Training Analysis of P-3 Replacement Pilot and Flight Engineer Training. Technical Report 10, 1973, AD 773745. (123 pages)**

This report concerns P-3 aircraft pilot and flight engineer training at the Replacement Squadron level. It presents the results of:

- . an evaluation of the training effectiveness of Devices 2F69D, Operational Flight Trainer, and 2C23/A, Cockpit Familiarization Trainer
- . a field tryout of an experimental synthetic and flight syllabus for P-3 replacement pilot training
- . an economic analysis of the possible savings to be realized from an improved instructional strategy
- . a training analysis of the current flight engineer training syllabus.

Also discussed are the requirements for a P-3C flight simulator and the additional tasks that may be trained in this simulator.

- 12 Lindahl, W. H., McNaney, T. W., Okraski, H. C., and Rankin, W. C. **Design of Training Systems Phase I Summary Report. Technical Report 11-1, 1973, AD 773458. (44 pages)**

This is the first in a series of reports concerned with the Design of Training Systems (DOTS) project. This report gives a summary of the status of the first

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phase of a three phase study. Phase I gives a description and analysis of the current Navy Education and Training System. Phase I also recommends educational technology innovations for system improvement. It also lists existing computer based models for simulation efforts. Also presented is a summary of observations and action items relative to Phase I.

- 13 Lindahl, W. H., and Gardner, J. H. Application of Simulation to Individualized Self-Paced Training. Technical Report 11-2, 1974, AD 786702. (78 pages)

The feasibility of applying computer simulation to an individualized self-paced training system was examined. This report describes the computer simulation technique as providing training management with quantitative data on system performance and capabilities which can be used to compare proposed methods, concepts, or designs. An electronic warfare school which was in the planning stage provided the opportunity to demonstrate the feasibility and value of the computer simulation technique as applied to training systems. This study gives the expected completion times for input rates of 4, 6, and 8 students per day in the proposed electronic warfare school. The report also gives a program listing, flowchart, and a sample output of the computer simulation program used.

- 14 Bellamy, H. J., Duffy, L. R., Elkin, A., Hallman, R. E., and Yanko, R. E. Design of Training Systems, Phase I Report, Volumes I and II. Technical Report 12-1, 1973, AD 774931. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (474 pages)

A functional descriptive model of the current Naval Education and Training System and idealized approaches oriented toward a 1980 time frame are presented. Technological gaps and problem areas are presented but no organizational elements are specified, since the prime areas of interest are the functions performed by training systems. This report describes the selection and evaluation of candidate mathematical models to be developed in Phase II. Important features of Volume II are strategic working assumptions for the 1980s and mathematical models and data bases.

- 15 Bellamy, H. J., Branch, K. V., Duffy, L. R., Edison, C. G., Hallman, R. E., and Yanko, R. E. Design of Training Systems Phase II Report. Technical Report 12-2, 1974. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (854 pages)

This report contains the following three volumes:

- . Volume I (AD#A004929)--Design of Training Systems (DOTS) Phase II Overview

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- . Volume II (AD#A005414)--Detailed Descriptions of Models in the Design of Training Systems
- . Volume III (AD#A004930)--Program Descriptions and Operating Procedures for the DOTS three computer based models.

Volume I presents an overview of the DOTS project. It describes the three Design of Training Systems computer-based models, a description of their validation process, and the long range implications of developing an operational system according to the DOTS models.

Volume II presents a detailed description of the:

- . Systems Capabilities/Requirements and Resources model
- . Educational Technology Evaluation model
- . Training Process Flow model.

Model logic design input/output parameters, and data base communications are discussed at each level which allows one to analytically evaluate each model's design. In addition, Level I validation scenarios are presented in enough detail to allow them to be duplicated.

Volume III contains the model and data base program descriptions and operating procedures. Flow charts and program listings for the models, applications, and interfaces programs are described in appropriate sections. It also contains a detailed description of the DOTS data base.

- 16 Miller, R. B., and Duffy, L. R. Design of Training Systems Phase II-A Report. An Educational Technology Assessment Model (ETAM). Technical Report 12-3, 1975, AD A015295. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (476 pages)

The study results and design for an Educational Technology Assessment Model (ETAM) are outlined. ETAM is a training management tool for determining the long-term effects of putting new educational technology techniques into the training environment. This report describes an eight task procedure intended to guide the person assessing a training innovation through the required data collection and analysis. These steps lead to a decision to accept, reject, or continue to study the innovation. Scenarios describe applying the ETAM procedures step by step in assessing an educational innovation.

Other sections of the report include:

- . conclusions and recommendations

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- . a review of relevant literature
- . parts of ETAM that can be computerized
- . ETAM validity and utility results.

- 17 Copeland, D. R., Nutter, R. V., Dean, Carol F., Curry, T. F., Jr., Morris, C. L., Jr., and Gates, Susan C. **Analysis of Commercial Contract Training. Technical Report 13-1, 1974, AD A006658. (150 pages)**

The phase I findings of a two-phase study are described. Phase I explores the possible applications of using commercial contract training to provide technical training for Navy enlisted personnel. Specifically, phase I studied training capabilities, techniques, and management practices of industrial organizations in both public and private training institutions. Phase II will use the findings of phase I and implement them in selected Navy and Marine Corps training.

In phase I, 12 Navy enlisted ratings at the entry level of skill training were selected to be studied because of their similarity to civilian skills. Technical training aspects of industrial organizations and public and private training institutions were surveyed. An economic analysis of training and a discussion of the Armed Services Procurement Regulation are included.

- 18 Middleton, M. G., Papetti, C. J., and Micheli, G. S. **Computer Managed Instruction in Navy Training. Technical Report 14, 1974, AD 777040. (106 pages)**

The findings of a study investigating how feasible it would be to use Computer Managed Instruction (CMI) in the Navy are presented. Three areas were studied: (a) large-scale centralized computer system for all formal Navy training, (b) minicomputers for small, remote Navy classes, and (c) shipboard computers for managing individual training aboard ships.

Specifically, the report includes:

- . An overview of CMI
- . The state-of-the-art of CMI in the military, government, industry, and education
- . The feasibility for CMI of:
  - .. minicomputers
  - .. shipboard computers
  - .. centralized computer center

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- . an overview of computer languages for CMI
- . rationale and criteria for selecting Navy courses for CMI
- . an overview of instructional terminals for CMI.

- 19 **Pearson, T. E., and Stubbs, W. B. Surface Navy ECCM Training Analysis. Technical Report 15, 1975, AD 8008049. (83 pages)**

A goal of this study was to define the training problems of the Navy's Electronic Counter Countermeasures (ECCM) system. Another goal was to formulate a plan for developing an effective ECCM training system which will improve the readiness of the Naval Surface Ship Combat Systems. To obtain these goals, the Surface Navy methods and procedures for identifying training and using ECCM (radar) operator personnel were studied. Major radar operator ECCM tasks were identified and their common tasks determined. The analysis findings were used in developing an ECCM training improvement program. The report gives Navy training management guidelines to begin and then manage the major elements of recommended ECCM training improvement programs.

- 20 **Braby, R., Henry, J. M., Parrish, W. F., Jr., and Swope, W. M. A Technique for Choosing Cost-Effective Instructional Delivery Systems. Technical Report 16, 1975, AD A012859. (115 pages)**

This report presents the Training Effectiveness and Cost Effectiveness Prediction (TECEP) technique. It is a technique for choosing cost-effective instructional delivery systems for training programs. It gives an orderly approach for skilled training system designers to use in making delivery system choices during the training design phase. The basis of this technique is a three-step procedure in which:

- . training objectives are classified and organized into groups and appropriate learning strategies are defined for each group
- . media capable of supporting these strategies are identified
- . the costs of alternative forms of the training are projected.

The most cost-effective delivery system can be chosen with this information. Reference materials provided to assist the training system designer in carrying out this process include:

- . a list of 12 types of learning algorithms and the class of learning objectives each supports

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- . separate tables for choosing instructional delivery systems for each algorithm
- . a cost model for comparing the value of resources required by alternative delivery systems
- . a Fortran IV program listing of the cost model.

(NOTE: A companion report amplifying the first step of the TECEP technique has been published as TAEG Report No. 23, Learning Guidelines and Algorithms for Twelve Types of Training Objectives.)

21 Papetti, C. J., Lam, Karen D., and Swope, W. M. Instructor Training. Technical Report 17, 1975, AD A015294. (119 pages)

An analysis of the current Navy instructor training system is presented. The report makes recommendations for the instructor training program of the 1975-85 period. Discussions and recommendations included in the report are in the areas of:

- . instructor selection and assignment
- . instructor training school staff
- . instructor training curriculum
- . instructor evaluation
- . instructor effectiveness
- . instructor feedback
- . instructor course grading
- . instructor career structure
- . cost effectiveness of Instructor Training School centralization.

Analysis and recommendations are limited to the six formal Instructor Training Schools under the direct curriculum control of CNTECHTRA.



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- 22 Hall, E. R., and Rizzo, W. A. An Assessment of U.S. Navy Tactical Team Training. Technical Report 18, 1975, AD A011452. (85 pages)

This study assessed the status of tactical team training in the Navy. The study sought to:

- . determine the current status of team training in the fleet and to identify deficiencies in practices
- . review the findings of the technical literature relevant to improvement of team training practices
- . make recommendations regarding the future conduct of team training.

Information was compiled for planning tactical team training. Current practices in team training are discussed in light of the findings of the technical research literature. Recommendations for improving team training operations are presented.

- 23 Dyer, F. N., Ryan, L. E., and Mew, Dorothy V. A Method for Obtaining Post Formal Training Feedback: Development and Validation. Technical Report 19, 1975, AD A011118. (118 pages)

An effective method for obtaining post-formal training feedback information for use in the Navy training system was developed and validated. Continually applying this method will identify the needs which will guide the training improvements necessary to meet changing operational demands. The mail-out questionnaire was validated by showing its results were equivalent to results of personal interviews. Different feedback instruments and procedures for administering them were compared. A companion report (TAEG Report No. 20, 1975) provides detailed instructions for using this feedback questionnaire.

- 24 Dyer, F. N., Mew, Dorothy V., and Ryan, L. E. Procedures for Questionnaire Development and Use in Navy Training Feedback. Technical Report 20, 1975, AD A018069. (62 pages)

This procedure manual provides detailed instructions to school personnel for constructing and administering a successful feedback questionnaire. It also tells how to use the resulting data to identify and correct training problems. Specific information is provided about:

- . the number of questionnaires to mail

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- . the particular persons to receive them
- . the time following graduation for mailing
- . ways to obtain a satisfactory rate of return
- . specific rating scale forms
- . specific instructions.

These items will facilitate the development of a feedback questionnaire for a particular school.

- 25 Copeland, D. R., Nutter, R. V., Henry, J. M., Swope, W. M., Curry, T. F., Jr., and Gates, Susan C. Analysis of Commercial Contract Training for the Navy (Phase II). Technical Report 21-1, 1975, AD A016890. (201 pages)

The findings of a two-phase study addressing how feasible it would be to use commercial sources to train selected basic skills in the Navy are contained in this report.

It is the second of three reports concerning contract training in the Navy and Marine Corps. The report is made up of two parts. Part I (TAEG Report No. 21-1) demonstrates the usefulness of the commercial contract training concept for the Navy. Part II (TAEG Report No. 21-2) contains useful information for those desiring to implement and manage a VOTEC program.

This report addresses:

- . the major issues concerned with source evaluation
- . skill analysis and selection
- . contractual consideration
- . comparative training capability evaluation
- . guidelines for analyses necessary for sound management decisions (after beginning procurement action for commercial training services).

The first report (TAEG Report No. 13-1) presented the results of the phase I analysis of the training capabilities of industrial organizations and public and private training institutions.

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- 26 Copeland, D. R., Curry, T. F., Jr., Gates, Susan C., Henry, J. M., and Nutter, R. V. Commercial Contract Training, Navy Area VOTEC Support Center (AVSC) Guidelines. Technical Report 21-2, 1975, AD A015329. (118 pages)

The findings of a two-phase study addressing how feasible it would be to use commercial sources to train selected basic skills in the Navy are presented.

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This report prescribes a system for conducting commercial VOTEC training on a daily basis. The report describes:

- . VOTEC basic concepts
- . VOTEC coordination structure
- . typical functioning process
- . notes on contracting
- . typical survey forms
- . VOTEC sources of Navy related instruction.

The first report (TAEG Report No. 13-1) presented the results of the phase I analysis of the training capabilities of industrial organizations and public and private training institutions.

- 27 Copeland, D. R., Nutter, R. V., Henry, J. M., Swope, W. M., Curry, T. F., Jr., and Gates, Susan C. Analysis of Commercial Contract Training for the Marine Corps (Phase II). Technical Report 22-1, 1975, AD A015330. (192 pages)

Research discussed in this report concerns the findings of a two-phase study addressing how feasible it would be to use commercial sources to train selected basic skills in the Marine Corps.

It is the third of three reports concerning contract training in the Navy and Marine Corps. The report is made up of two parts. Part I (TAEG Report No. 22-1) demonstrates the usefulness of the commercial contract training concept for the Marine Corps. Part II (TAEG Report No. 22-2) contains useful information for those

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desiring to implement and manage a VOTEC program.

This report addresses:

- . the major issues concerned with source evaluation
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- . contractual consideration
- . comparative training capability evaluation
- . guidelines for analyses necessary for sound management decisions (after beginning procurement action for commercial training services).

The first report (TAEG Report No. 13-1) presented the results of the phase I analysis of the training capabilities of industrial organizations and public and private training institutions.

- 28 Copeland, D. R., Curry, T. F., Jr., Gates, Susan C., Henry, J. M., and Nutter, R. V. Commercial Contract Training, Marine Corps Area VOTEC Support Center (AVSC) Guidelines. Technical Report 22-2, 1975, AD A015331. (68 pages)

The findings of a two-phase study addressing how feasible it would be to use commercial sources to train selected basic skills in the Marine Corps are presented.

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- . VOTEC sources of Marine Corps related instruction.

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The first report (TAEG Report No. 13-1) presented the results of the Phase I analysis of the training capabilities of industrial organizations and public and private training institutions.

- 29     **Aagard, J. A., and Braby, R. Learning Guidelines and Algorithms for Types of Training Objectives. Technical Report 23, 1976, AD A023066. (84 pages)**

The psychological learning principles applicable to the training of common military job tasks are summarized. It provides guidance for training system designers in defining basic learning events. Training strategies are presented for 11 common classes of training objectives. These classes of objectives are:

- . recalling bodies of knowledge
- . using verbal information
- . rule learning and using
- . decision making
- . detecting
- . classifying
- . identifying symbols
- . voice communicating
- . recalling procedures and positioning movement
- . steering and guiding, continuous movement
- . performing gross motor skills.

The training strategy for each instructional objective category is made up of three parts:

- . a definition of the class and a description of each category's uniqueness
- . a set of learning guidelines:
  - .. consisting of a series of statements which prescribe specific learning elements to be designed into a training system
  - .. based mostly on learning theory and somewhat on practical experience
  - .. representing information available for prescribing general solutions for a training category

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- . a learning algorithm:
  - .. expressed as a flow chart of a sequence (or system) of learning events
  - .. represents a logical arrangement of the events called for in the learning guidelines.

These guidelines and algorithms may be used to guide training system designers in:

- . specifying learning events and activities
- . selecting instructional delivery vehicles
- . designing instructional materials
- . evaluating existing instructional materials
- . recording field experience for use in improving the guidelines and algorithms.

30 Smode, A. F., and Lam, Karen D. Military Instructor Training in Transition. Proceedings of an Inter-Service Conference. Technical Report 25, 1975, AD A013330. (175 pages)

Presented are a series of papers read at the conference on "Military Instructor Training in Transition," held on 15-17 January 1975 at the Naval Training Center, Orlando, Florida. The conference was hosted by the Training Analysis and Evaluation Group of the Chief of Naval Education and Training. The conference brought together people involved in instructor training from the military services, industry, and academia to exchange ideas and to discuss mutual issues, problems, and trends in producing effective instructors. Two major themes were explored during the conference:

- . instructor training programs in today's military environment highlighting current practices, trends, constraints, and problems
- . innovative concepts and ideas relevant to the long-range planning for instructor training.

Emphasis was given to:

- . contributions of man vs. machine presentation of instruction
- . examining the humanizing values, the richness and sensitivity resulting from the man in the training loop
- . values resulting from machine organization and control of instruction.

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- 31     **Browning, R. F., Scott, P. G., and Diehl, A. E. Alternative System Designs for Navy Undergraduate Pilot Training, Post 1975. Technical Report 26, 1975. (146 pages)**

This report presents a study of Navy undergraduate pilot training. It contains:

- . methodology used to identify pilot training requirements of the post-1975 period
- . results of a commonality analysis used to identify general skills required of all pilots and specific skills required by one or more aircraft communities
- . system designs for a long-term pilot training system and alternative
- . economic analysis of long-range pilot training system and alternatives.

The first of two long-term training system models presented in this report describes an optimized system design. It features an advanced state-of-the-art pilot selection technique. Synthetic trainers are used to predict general flying abilities and future training attrites.

- 32     **Giauque, W. C. Decision Analysis and Its Application to the Naval Education and Training Command. Technical Report 27, 1975, AD A015625. Naval Postgraduate School, Monterey, CA 93940 (69 pages)**

The Naval Postgraduate School, Monterey, California, was tasked by the Training Analysis and Evaluation Group to:

- . analyze the functional description of the Naval Education and Training Command (NAVEDTRACOM) from the standpoint of how decisions are made
- . review the literature bearing on decision theory as applied to large-scale organizations
- . develop a taxonomy of the types of decisions made by managers within the NAVEDTRACOM
- . develop criteria for evaluating decisions within the NAVEDTRACOM
- . develop recommendations for improving the present decision making process
- . develop a description of the optimum method of decision making.

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- 33 Hallman, R. E. Design of Training Systems Phase III Report. Technical Report 28, 1975, AD A024482. International Business Machines Corporation, Cape Canaveral, Florida, 32920 - Contract No. N61339-73-C-0097 (74 pages)

The test and evaluation (T&E) of three mathematical models of the Design of Training System (DOTS) are described. Concerning the T&E approach, the following are described:

- . the objectives of the T&E, including:
  - .. IBM technical team activities
  - .. activities of the Government T&E team
- . supporting tasks to the test and evaluation:
  - .. test-bed implementation
  - .. support Navy test and evaluation
  - .. support documentation
  - .. T&E results analysis
- . test and evaluation of the mathematical models:
  - .. training at Norfolk FLETRACEN staff
  - .. training of the T&E team
  - .. T&E team model analysis
  - .. functional visits.

In presenting the test and evaluation results, the following were discussed from the T&E final report (published by NPRDC):

- . general conclusion
- . technical feasibility
- . operational feasibility
- . financial feasibility
- . criticism and recommendations.

Recommendations were given concerning:

- . direction of future DOTS' R&D efforts
- . possible operational implementation of DOTS type models.



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- 34 Bellamy, H. J., Branch, K. V., Staley, J. D., and Yanko, R. E. Design of Training Systems Program Maintenance Manual: Data Base, ETE, SCRR, and TPF Models. Technical Report 29, 1975, AD A018089. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (612 pages)

Detailed descriptions of the three Design of Training Systems (DOTS) models and the DOTS data base are contained in this report. This manual contains:

- . the Educational Technology Evaluation (ETE) model
- . the System Capabilities Requirements and Resources (SCRR) model
- . the Training Process Flow (TPF) model
- . the DOTS data base.

Each section of the subsystem is subdivided into the following parts:

- . a subsystem description
- . macro flow
- . detailed flows
- . program listings.

For each subsystem (the three models and the data base), the following are described:

- . control logic
- . input/output record formats
- . temporary and permanent data files.

The information contained in this volume is intended to be used by programmers who install or modify the DOTS programs.

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- 35 Bellamy, H. J., Branch, K. V., Staley, J. D., and Yanko, R. E. Design of Training Systems User's Manual: Data Base, ETE, SCRR, and TPF Models. Technical Report 30, 1975, AD A018012. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (315 pages)

The purpose of this manual is to familiarize the user of the Design of Training Systems (DOTS) programs with the operation of the three DOTS models and the DOTS data base. This manual contains a system overview and detailed information on the major subsystems:

- . the DOTS data base
- . the Educational Technology Evaluation (ETE) model
- . the System Capabilities Resources and Requirements (SCRR) model
- . the Training Process Flow (TPF) model.

Each subsystem section contains:

- . a discussion of subsystem architecture
- . design assumptions
- . input requirements
- . output parameters.

Besides the operational procedures for both the data base and the computer subsystems, the following additional procedures are given:

- . administrative procedures for the data base
- . test of each model's operation (to be used before applying to specific training data).

- 36 Swope, W. M. A Primer on Economic Analysis for Naval Training Systems. Technical Report 31, 1976, AD A024214. (61 pages)

This report amplifies the concepts, purposes, techniques, and procedures of an economic analysis. It discusses the following aspects of an economic analysis:

- . potential difficulties likely to be encountered
- . the detailed steps involved.

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- 37 Miller, R. B., and Duffy, L. R. **Design of Training Systems: The Development of Scaling Procedures.** Technical Report 32, 1975, AD A051647. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (86 pages)

Presented are the procedures and reasoning for making decisions where the possible outcomes of alternative decisions have multiple valued dimensions. This report extends and heavily relies upon an understanding of the Educational Technology Assessment Model (TAEG Report No. 12-3). This report refers to the multiattribute utility estimating literature. It discusses both theoretical as well as practical considerations faced by decision makers in structuring data before making decisions. Detailed scaling procedures which give guidance in developing an interactive computer-based program of the Educational Technology Assessment Model (ETAM) are presented in section II.

- 38 Duffy, L. R. **DOTS Utility Assessment: The Training Process Flow and System Capabilities/Requirements and Resources Models Operating in the TRAPAC Environment.** Technical Report 33, 1976, AD A026289. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (65 pages)

The primary objective of this task was to demonstrate the usefulness of the System Capabilities Requirements and Resources (SCRR) and Training Process Flow (TPF) models to Navy training managers at the activity and functional command level. A secondary objective was to identify possible improvements to the simulation models and data base which could increase their usefulness for training managers. As a result of a field test at COMTRAPAC the following were identified:

- . management applications of the models
- . improvements for using the simulation models and data base.

The results of a review by an evaluation team made up of participants from the Training Analysis and Evaluation Group, COMTRAPAC, and COMTRAPAC subordinate activities are discussed.

Recommendations were made for improving the use of the models and data base

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- 39 Copeland, D. R., Henry, J. M., Mew, Dorothy V., and Cordell, C. C. Navy Recruit Training Optimization, Post 1980. Phase I: Current Assessment and Concept for the Future. Technical Report 34, 1976, AD A026528. (85 pages)

Presented in this report is the first phase of a three-phase project concerned with optimizing the Navy's recruit training.

The phases of the recruit training project are:

- . Phase I - current assessment and curriculum design
- . Phase II - curriculum areas and possible alternate curricula
- . Phase III - the selected curriculum and evaluation criteria.

This report is intended to provide a recruit training curriculum which will meet the needs of the Navy's operational fleet after 1980. The proposed curriculum design is based upon analyses of:

- . current training (late 1975)
- . documented future Navy operational requirements
- . statistical information about the typical recruit profile of the 1980s.

The proposed curriculum design uses the systems approach to recruit training to ensure that:

- . the resulting curriculum will be responsive to:
  - .. changing fleet requirements
  - .. changing recruit profile
- . the goals of the recruit training curriculum are met:
  - .. an initially qualified seaman
  - .. the most efficient recruit training system that will produce a quality seaman

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- 40 Keeler, F. L., and Rizzo, W. A. An Evaluation of Microfiche Reader Types for Use with Programmed Instruction. Technical Report 35, 1976, AD A029714. (33 pages)

The results of a study concerned with a possible application of the microfiche medium for onboard training systems are presented. This report evaluates selected microfiche readers according to their ease-of-use. The study:

- . evaluated different frame locating mechanisms in the microfiche readers
- . determined the ability of Navy enlisted personnel to perform a branching task using these readers
- . ranked the readers in order of time required to:
  - .. locate a microfiche
  - .. locate and focus a reference frame
  - .. remove the microfiche.

- 41 Branch, K. V., Staley, J. D., and Yanko, R. E. Design of Training Systems TRAPAC User's Manual: Data Base, SCRR, and TPF Models. Technical Report 36, 1976, AD A040238. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (578 pages)

This manual contains:

- . a user-oriented guide for using and applying Design of Training Systems (DOTS) software
- . descriptions of programmer-oriented DOTS software.

The major DOTS subsystems addressed include:

- . the DOTS data base and maintenance system
- . the System Capabilities/Requirements and Resources (SCRR) model
- . the Training Process Flow (TPF) model.

The user-oriented sections contain discussions of:

- . subsystem architecture
- . design assumptions

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- . input requirements
- . output parameters.

Procedures are provided for:

- . preapplication system test
- . operational use
- . administrative procedures
- . operational maintenance procedures.

The programmer-oriented sections present:

- . program descriptions
- . macro flows
- . input/output data formats (where applicable)
- . program source code listings for each subsystem (the two models and the data base).

The information contained in the programmer-oriented sections is intended for use by programmers tasked with installing, modifying, or maintaining the DOTS software.

- 42     Branch, K. V., Duffy, L. R., Staley, J. D., and Yanko, R. E. Design of Training Systems Phase IV Report. Technical Report 37, 1976, AD A046700. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (67 pages)

This report:

- . summarizes the functional analysis, development, and field test activities of the Training Requirements Analysis Model (TRAM)
- . includes final study data on the DOTS Utility Assessment.

Also included in this report are cost and resource data which should be useful in planning follow-on application and model development.

- 43 Papetti, C. J., Curry, T. F., Jr., and Green, E. K. Centralized Instructor Training for Naval Technical Training. Technical Report 38, 1976, AD A036477. (115 pages)

Factors related to the feasibility of centralizing (consolidating) the CNTECHTRA instructor training schools are identified and discussed. The study considers the alternative options of reducing the present six sites to:

- . a single school or academy
- . two schools
- . three schools.

This study is divided into two parts:

- . the first part explores:
  - .. qualitative factors
  - .. identifying and evaluating the noncost variables relative to the centralization decision
- . the second considers economic (cost) factors.

The qualitative analysis:

- . identifies 45 variables associated with instructor school functions
- . identifies eight variables associated with location factors
- . incorporates a summary of comments on various aspects of the centralization concept.

The report provides a "present cost" model based upon resource expenditures for facilities, transportation, labor and equipment. Also included are summaries of requirements using new construction or modified existing structures for centralization.

- 44 Hall, E. R., Lam, Karen D., and Bellomy, Susan G. Training Effectiveness Assessment: Volume I, Current Military Training Evaluation Programs. Technical Report 39 VOL I, 1976, AD A036517. (40 pages)

The overall study was concerned with:

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- . organizing information relevant to the assessment of training effectiveness within a military setting
- . developing assessment methods suitable for use within the Navy environment.

The study is reported in two volumes. Volume I reviews current military training evaluation programs.

The following aspects of the assessment of training effectiveness for each of the military services are described:

- . evaluation philosophy
- . documentation
- . current practices.

Volume II examines specific problems in conducting evaluation programs in the Navy. More specifically, this volume:

- . provides guidance for the conduct of training effectiveness assessments
- . describes and evaluates a variety of suitable objective techniques.

- 45     Hall, E. R., Rankin, W. C., and Aagard, J. A. Training Effectiveness Assessment: Volume II, Problems, Concepts, and Evaluation Alternatives. Technical Report 39 VOL II, 1976, AD A036518. (45 pages)

The overall study was concerned with:

- . organizing information relevant to the assessment of training effectiveness within a military setting
- . developing assessment methods suitable for use within the Navy environment.

The study is reported in two volumes. Volume I reviews current military training evaluation.

Volume II examines specific problems in conducting evaluation programs in the Navy. More specifically, this volume:

- . identified and evaluated factors which affected establishing and conducting training effectiveness assessment (TEA) efforts within the Navy
- . clarified and provided technical background information concerning training evaluation concepts and procedures



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- . examined and evaluated various methods for obtaining data for TEA
- . developed recommendations for conducting TEA in the Navy.

- 46 Duffy, L. R., Miller, R. B., and Staley, J. D. Design of Training Systems. Computerization of the Educational Technology Assessment Model (ETAM). Technical Report 40VOL I&II, 1977, AD A041217. International Business Machines Corporation, Cape Canaveral, Florida 32920 - Contract No. N61339-73-C-0097 (528 pages)

The analysis, design, and development activities associated with the Educational Technology Assessment Model (ETAM) are summarized.

Volume I contains:

- . relevant background information
- . results of prior studies leading to the finalized ETAM procedures and computerized routines
- . a comparison of the manual versus the automated approach
- . data base structures
- . the ETAM program flow.

Volume II includes:

- . study results of indexing innovations
- . assigning taxonomic descriptors to courses, job/tasks, and instructional vehicles
- . program documentation of ETAM
- . ETAM Range-of-Effect
- . bibliographic references
- . additional information supporting the ETAM design.

- 47 Cordell, C. C., and Nutter, R. V. Ship Handling and Ship Handling Training. Technical Report 41, 1976, AD A038402. (167 pages)

This report discusses ship handling and ship handling training by:

- . identifying the training requirements for a ship handler
- . developing the concept for a career structured training system which incorporates these requirements.

This study:

- . identified the elements of knowledge and skill required of a competent ship handler
- . defined the personal characteristics inherent in all ship handlers
- . determined the environmental and human factors which contributed to Navy and Merchant Marine accidents
- . investigated wake damage and replenishment at sea
- . listed deficiencies of existing training and training devices
- . identified training areas which seemed to need further study.

A new training system was proposed based on:

- . analysis of knowledge and skill elements
- . causative factors
- . existing training.

Additional training aids and devices are proposed in this report.

- 48 Browning, R. F., Ryan, L. E., Scott, P. G., and Smode, A. F. Training Effectiveness Evaluation of Device 2F87F, P-3C Operational Flight Trainer. Technical Report 42, 1977, AD A035771. (50 pages)

The results of a study which evaluated a new P-3 operational flight trainer (OFT) in VP-30 are presented. The effectiveness of Device 2F87F as a substitute for training using both Device 2F69D OFT and the P-3 aircraft was examined. The performance of Undergraduate Pilot Training (UPT) graduates was compared for those

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trained under the 2F87F OFT and those trained using the 2F69D OFT and P-3 aircraft. The intent was to discover the potential of the new OFT as a substitute method for training aircraft tasks. This study also appraised the familiarization/instrument phase of the simulator training syllabus developed by VP-30 for replacement pilot training.

49 Diehl, A. E., and Ryan, L. E. Current Simulator Substitution Practices in Flight Training. Technical Report 43, 1977, AD A036875. (37 pages)

A sampling of current practices in substitution simulator training for in-flight training is provided. The study was undertaken to obtain a useful understanding of current substitution practices and to determine the availability of this information. Simulation substitution practices are presented for general, commercial, and military aviation. Efficiency and effectiveness of flight simulation are presented for the following comparisons:

- . training category
- . student experience
- . user class
- . simulator capability
- . type of aircraft
- . curriculum feature.

Finally, limitations of current simulator substitution data are discussed.

50 Polcyn, K. A., Baudhuin, E. S., Ingle, H. T., Keiser, B. E., Rudwick, B. H., and Woods, W. E. Computer Managed Instruction at Remote Sites by Satellite: Phase I: A Feasibility Study. Technical Report 44, 1976, AD A040139. PRC Information Sciences Company, McLean, VA 22101 - Contract No. MDA 903-76-C-0256 (269 pages)

Preliminary research was conducted to understand the conditions, constraints, and parameters that could influence the design, preparation, and conduct of a CMI by satellite demonstration. Another purpose was to explore what communication systems would be available to become operational should the demonstration indicate this is desirable. Eight basic areas of research undertaken during the feasibility study were to determine:

- . whether learning is as effective when CMI is delivered to remote sites as CMI is in learning centers

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- . whether the attitudes of students, trainers and key remote site personnel support CMI delivered to remote sites
- . whether CMI is as economical when delivered to remote sites as compared to learning centers
- . personnel requirements
- . personnel training requirements
- . organization and management structure requirements
- . remote site space requirements and operational procedures to effectively use CMI training support
- . equipment, maintenance, spare parts, and logistics requirements.

**51 Curry, T. F., Jr., Heidt, E. A., and Miller, H. Officer Candidate School Curriculum Optimization. Technical Report 45, 1977, AD A041466. (134 pages)**

The results of a study which recommends reducing the Navy Officer Candidate School (OCS) program from 19 weeks to 16 weeks with minimum decrease in the quality of the graduate officer are described. To achieve the mandated reduction in training time, the study makes recommendations in the following areas:

- . appropriate curriculum by topic
- . hours per topic
- . recruitment/selection
- . pre-entry briefing of officer candidates
- . leadership training
- . use of rifles in training
- . pass-in-review exercise
- . physical training
- . shipboard experience.

The report:

- . provides an overview of the military services and Coast Guard officer acquisition systems

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- . compares the Navy OCS program to other military service OCS programs
- . compares OCS officer acquisition programs to other Navy initial officer acquisition programs
- . describes the Navy OCS in detail
- . discusses the relationships of OCS to the follow-on schools.

A final section of the report discusses issues affecting the Navy officer accession training process.

- 52     **Moore, E. O., Jr. The Management of Defense System and Equipment Training: A Guide for the Naval Education and Training Command. Technical Report 46, 1977, AD A046025. (176 pages)**

A guide to directives and instructions concerning the operation and maintenance of weapon systems/equipment training is contained in this report. Also, the guide provides orientation and guidance to:

- . novices in managing systems/equipment
- . CNET Training Plan Officers
- . all personnel in the Naval Education and Training Command (NAVEDTRACOM).

This report integrates information and references dealing with:

- . Navy system/equipment acquisition process
- . Department of Defense Planning, Programming and Budgeting System
- . Navy Training Plan Process.

It is a guide to:

- . Defense System and Equipment Training Management in the NAVEDTRACOM
- . information, references, and instructions relating to CNET's defense system/equipment training responsibilities.

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- 53 Middleton, M. G., Rankin, W. C., Green, E. K., and Papetti, C. J. Academic Attrition from Navy Technical Training Class "A" School Courses. Technical Report 47, 1977, AD A044029. (58 pages)

The purpose of this study is to determine the amount and pattern of attrition in Navy class "A" schools. The specific objectives of the Navy are:

- . identify those factors associated with academic attrition
- . determine the overall and course-specific costs of academic attrition
- . suggest corrective courses of action for monitoring, controlling, or reducing academic attrition.

The major variables that were identified as contributing to attrition are:

- . academic attrition
- . nonacademic attrition
- . qualified inputs
- . unqualified inputs
- . cost per equivalent graduate.

- 54 Rizzo, W. A. Evaluation of Microfiche as an Instructional Medium in a Technical Training Environment. Technical Report 48, 1977, AD A044519. (50 pages)

This study evaluated the effectiveness of using microfiche versus traditional paper copy as an instructional medium in Navy technical training. These media were compared in terms of:

- . the effects of the medium on:
  - .. time to complete an instructional course
  - .. examination error rate
  - .. training as a function of trainee aptitude.
- . trainee attitudes about using microfiche
- . costs of alternative media.

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- 55 Polcyn, K. A., Baudhuin, E. S., Brakka, L. T., Hoyt, Margaret H., Keiser, B. E., Kennelly, Della M., and Rudwick, B. H. Computer Managed Instruction at Remote Sites; Phases II-III, A Demonstration Design. Technical Report 49, 1977, AD A051966. PRC Information Sciences Company, McLean, Virginia 22101 - Contract No. MDA 903-76-C-0256 (233 pages)

The cost effectiveness of instructional support delivered at job sites directed and controlled by a centralized Computer Managed Instruction (CMI) System was evaluated.

The specific objectives of the effort were to determine:

- . whether learning is as effective when CMI is delivered to remote sites as CMI is in learning centers
- . whether the attitudes of students, trainers and key remote site personnel support CMI delivered to remote sites
- . whether CMI is as economical when delivered to remote sites as compared to learning centers
- . personnel requirements
- . personnel training requirements
- . organization and management structure requirements
- . remote site space requirements and operational procedures to effectively use CMI training support
- . equipment, maintenance, spare parts, and logistics requirements.

The tasks described in this report include:

- . developing an economic rationale
- . designing and developing a research plan and a demonstration plan
- . specifying tasking requirements
- . developing a demonstration master plan
- . developing data collection instruments.

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- 56 Keeler, F. L. An Automated Publishing System for the Naval Education and Training Command. Technical Report 50, 1977, AD A047648. (78 pages)

This report:

- . analyzed the procedures and functions required for publishing Navy training materials
- . described the best suited and most cost-effective man/machine system to meet those requirements

The current CNET publishing system is described and analyzed in terms of:

- . authoring
- . composing
- . encoding
- . typesetting
- . editing
- . printing
- . illustrating
- . platemaking.

Possible hardware elements for accomplishing these functions are described. Five alternative systems to the current one are defined as the:

- . Word Processor Based System
- . Advanced Word Processor Based System
- . Advanced Word Processor Based System with a Typesetter
- . Text Editor Based System
- . Text Editor Based System with Graphic Scanner.

A cost analysis of the publishing system alternatives is presented.



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- 57 Rankin, W. C., and Hall, E. R. Demonstration of a Methodology for Classifying Naval Training Courses. Technical Report 51, 1977, AD A048991. (86 pages)

The feasibility of developing data based classification categories for Naval technical training courses was determined. A procedure identified (or selected), demonstrated, and documented methods for classifying training courses on various descriptive bases.

A method for finding homogeneous groups of courses within the broader Naval training categories of "A" and "C" is presented. A computer based clustering algorithm was used on data from a sample of over 400 Navy enlisted technical training courses. Data on courses were obtained from:

- . existing training management information data bases
- . a course description survey developed for this study.

- 58 Lindahl, W. H., and Lin, B. W. An Heuristic Approach for the Scheduling of Navy Training Courses. Technical Report 52, 1977, AD A048183. (54 pages)

This report:

- . documents the essential components of scheduling training at the Fleet Anti-Submarine Warfare Training Center, Pacific
- . provides results of an initial effort to automate the current manual scheduling process
- . demonstrates the proposed automated process.

Recommendations for additional study efforts related to the development of an automated optimal scheduling system are presented.

- 59 Copeland, D. R., Mew, Dorothy V., Henry, J. M., and Curry, T. F., Jr. Navy Recruit Training Optimization, Post-1980. Phase II: Current Assessment and Options for Navy Apprentice Training. Technical Report 53, 1978, AD A053007. (104 pages)

This report addresses the Fleet requirements of Navy apprentice training after 1980. This study of apprentice training was carried out by:

- . determining the current status of the program

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- . identifying existing problems and recommending solutions
- . suggesting organizational alternatives for placing apprentice training in the Navy training system.

60     Browning, R. F., Ryan, L. E., and Scott, P. G. Utilization of Device 2F87F OFT to Achieve Flight Hour Reductions in P-3 Fleet Replacement Pilot Training. Technical Report 54, 1978, AD A053650. (44 pages)

The training effectiveness of Device 2F87F was investigated by examining factors that influence device use. Specifically, the study examined:

- . performance of a group trained in the aircraft only compared with a matched group trained in a simulator and the aircraft
- . the value of training trials as indices of student performance and device effectiveness
- . correlation of performance in Device 2F87F with performance in the P-3 aircraft
- . effect of undergraduate pilot training (UPT) performance on later performance in the Fleet Readiness Squadron (FRS).

In this study the following was considered:

- . the number of in-flight hours without training in Device 2F87F needed to complete the Familiarization/Instrument phase of FRS
- . transfer effectiveness ratios for Device 2F87F
- . benefits of landing practice using Device 2F87F
- . correlation between UPT performance (flight grades and flight hours) and FRS performance.

61     Swope, W. M., and Green, E. K. A Guidebook for Economic Analysis in the Naval Education and Training Command. Technical Report 55, 1978, AD A053207. (49 pages)

The basic steps in doing an economic analysis are outlined. This document is designed for mid-level managers and analysts who make resource allocation decisions. The techniques proposed are intended for short-run operational problems such as:

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- . equipment acquisition
- . contracting
- . consolidating training activities
- . reorganizing training activities.

- 62     **Pearson, T. E., Mac Keraghan, L. R., and Stubbs, W. B. Development of the Navy Consolidated Electronic Warfare Operator Curriculum. Technical Report 56, 1978, AD A057011. (64 pages)**

The development of the Navy Consolidated Electronic Warfare (EW) Operator Training program is described. The report focuses on developing the overall EW operator training system which involved:

- . the integration of instructional technology
- . simulation technology in the design of the training system.

In addition, TAEG's responsibilities in managing this program are presented.

- 63     **Pearson, T. E., and Moore, E. O., Jr. Analysis of Software Simulation in Computer-Based Electronic Equipment Maintenance Trainers. Technical Report 57, 1978, AD A060583. (75 pages)**

The current and future application of computers in electronic equipment maintenance training devices was surveyed. Emphasis was placed on examining computer software simulation techniques. These techniques generated simulation of:

- . electronic equipment front panel operations characteristics
- . internal circuit static operating characteristics
- . internal circuit dynamic operating characteristics.

The relevant literature in electronic equipment maintenance training devices was organized and reviewed. A bibliography of relevant literature is included in this report.

- 64 Braby, R., Parrish, W. F., Jr., Guitard, C. R., and Aagard, J. A.  
Computer-Aided Authoring of Programmed Instruction for Teaching Symbol Recognition.  
Technical Report 58, 1978, AD A060143. (304 pages)

This report describes AUTHOR, a computer program for the automated authoring of program text designed to teach symbol recognition. This report emphasizes computer aided authoring with alphanumeric symbols and memory aids. Sample texts are provided which represent various levels of off-line editing. These texts indicate the full range of authoring automation. This report describes the following:

- . design of the instructional materials
- . computer system description
- . computer program architecture.

- 65 Guitard, C. R. Computer-Aided Authoring System (AUTHOR) User's Guide.  
Technical Report 59, 1978. (991 pages)

An operator's handbook (Volume I) and program listing (Volume II) describing AUTHOR are contained in this report. AUTHOR is an automated authoring computer program which produces programmed texts designed to teach symbol recognition. Volume I (AD No. A059572) contains the following sections:

- . preparing the AUTHOR workbook
- . using the WANG computer
- . creating and maintaining the subject matter data base
- . creating and maintaining the programmed text (learning module)
- . optional features of the AUTHOR system.

Volume II (AD No. A061611) contains the following sections:

- . AUTHOR system initializing program
- . formal display program
- . data base maintenance programs
- . learning module maintenance programs

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- . formal data subprograms
- . formal listings
- . compressing program source code.

- 66 Braby, R., Kincaid, J. P., and Aagard, J. A. Use of Mnemonics in Training Materials: A Guide for Technical Writers. Technical Report 60, 1978, AD A064218. (71 pages)

This is a guide for creating mnemonics for technical materials. The mnemonic techniques described in this report can be used as learning aids in:

- . programmed instruction
- . technical manuals
- . lesson plans for classroom instruction.

This guidebook provides a means for determining:

- . when to use mnemonics
- . how to choose an appropriate type of mnemonic
- . how to create the mnemonic.

The guidebook should be particularly useful to Navy curriculum developers carrying out the guidelines in NAVEDTRA 106A.

- 67 Rankin, W. C., Hodak, G. W., Middleton, M. G., and Aagard, J. A. Study to Improve the Resource Requirements Request (RRR) Process in the NAVEDTRACOM. Technical Report 61, 1978, AD A060815. (132 pages)

This study analyzed the current resource requirement request (RRR) process and recommended ways to improve it. The RRR is the process by which the Chief of Naval Education and Training (CNET) gets funds for resource requirements. The following were studied and discussed in this report:

- . make a model of the RRR initiation and staffing processes within a CNET functional command
- . diagram RRR staffing within CNET and their interactions with the originating functional command

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- . identify steps in the RRR POM process that can be simplified or eliminated
- . determine CNET staffing needs for the process of submitting RRRs
- . develop possible ways for improving the RRR/POM process.

**68** Curry, T. F., Jr., Copeland, D. R., Henry, J. M., and Mew, Dorothy V. **Selection and Training of Navy Recruit Company Commanders.** Technical Report 62, 1978, AD A062647. (128 pages)

This report addresses:

- . selecting, training, and making the best use of the Navy Recruit Company Commanders
- . optimizing the use of the Company Commanders to meet the needs of Navy recruit training in the post-1980s.

The report reviewed the Navy's Company Commander program in the following areas:

- . mission and organization
- . selection criteria and procedures
- . career benefits and incentives
- . training approach and content
- . duties and functions.

Finally, this report provides:

- . a comparison between the Navy Company Commander program and similar programs of the other military services
- . a proposed standardized recruit training instructor school curriculum.

**69** Ryan, L. E., Scott, P. G., and Browning, R. F. **The Effects of Simulator Landing Practice and the Contribution of Motion Simulation to P-3 Pilot Training.** Technical Report 63, 1978, AD A061143. (39 pages)

This report examined:

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- . the effectiveness of Device 2F87F to train the final part of the P-3 landing task
- . the need for specific objectives concerning cockpit motion to be in the training curriculum
- . the frequency of motion sickness in the simulator with the cockpit motion system off and the visual system operating.

The analysis studied the following factors in P-3 landing practice:

- . overall flight hours
- . flight hours to landing proficiency
- . P-3 landings needed
- . transfer effectiveness ratios
- . qualifying students based on their undergraduate pilot training
- . frequency of motion sickness.

- 70     Hall, E. R., Denton, Carol F., and Zajkowski, M. M. A Comparative Assessment of Three Methods of Collecting Training Feedback Information. Technical Report 64, 1978, AD A063742. (116 pages)

Three methods of obtaining training feedback data from the fleet are compared:

- . a mail-out questionnaire
- . a structured interview procedure
- . a job knowledge test.

The report evaluates the three different methods of gathering feedback with respect to:

- . the relative merits of each
- . optimum circumstances for using each.

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- 71 Cordell, C. C., Nutter, R. V., and Heidt, E. A. The Design of a Shiphandling Training System. Technical Report 65, 1979, AD A065095. (134 pages)

An integrated career structured training program for shiphandling training was developed. In this training development, major training aids/devices were identified as follows:

- . a career structured shiphandling training unit
- . a full bridge mission simulator
- . a new small craft training device.

Also included in the report are:

- . shiphandling training unit lesson topics
- . a functional specification for a full-mission shiphandling bridge simulator
- . a concept design for a small craft training device.

- 72 Ainsworth, J. S. Symbol Learning in Navy Technical Training: An Evaluation of Strategies and Mnemonics. Technical Report 66, 1979, AD A068041. (228 pages)

The objectives of this study were to:

- . evaluate the instructional effectiveness of materials designed according to NAVEDTRA 106A
- . demonstrate if it would be feasible to produce effective instructional materials using computer-aided authoring routines.

The following types of instructional material were compared:

- . the traditional materials (study guide pages and flash cards)
- . a guided practice handbook
- . a mnemonics only handbook
- . a guided practice with mnemonics handbook.



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- 73 Copeland, D. R., Henry, J. M., and Mew, Dorothy V. Navy Recruit Training Optimization, Post 1980: Training System Design and A Plan for Implementation. Technical Report 67, 1978, AD A068473. (132 pages)

The purpose of this study was to design:

- . a Navy recruit training system to meet the needs of the Navy during the 1980s
- . an optimized recruit training curriculum
- . a revised standard organization to support the curriculum
- . an implementation plan.

The curriculum design provides a four phase modularized curriculum addressing:

- . administrative processing and training preparedness
- . military training
- . Navy training
- . detachment and transfer training.

A mechanism was developed for considering alternatives to the optimal curriculum in the event that changes would be needed.

Supplement I (AD No. A068536) published as a separate document, contains a complete set of topic worksheet summaries. It is for the use of staff personnel concerned with developing curriculum outlines and lesson plans.

- 74 Nutter, R. V., Cordell, C. C., and Heidt, E. A. A Cost Management Control Procedure for Initial Training in Surface Ship Acquisition Programs. Technical Report 68, 1979, AD A070037. (110 pages)

A cost management control procedure to assist Navy managers in making decisions about surface ship acquisition programs was developed. The objectives of this study were to:

- . develop and illustrate a cost management control procedure. This procedure would be used in commercially developed initial training programs to centralize the collection, storage, and control of cost data.

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- . develop an instrument for collecting cost data which is compatible with:
  - .. existing training requirements directives
  - .. proposed cost management control procedures.
- . identify and examine the major noncost management considerations that would affect using the proposed cost procedures.

**75 Hodak, G. W., Middleton, M. G., Rankin, W. C., and Papetti, C. J. Personnel Attrition from Navy Enlisted Initial Technical Training. Technical Report 69, 1979. (78 pages)**

This study refines and uses the TAEG developed data reduction techniques to extend the attrition data base. The objectives of the study were:

- . identify those factors associated with academic attrition
- . determine the overall and course specific costs of academic attrition
- . identify the extent and pattern of attrition in A1 and A3 courses
- . suggest corrective courses of action to monitor, control, and reduce academic attrition.

The major variables studied included:

- . academic attrition
- . nonacademic attrition
- . qualified vs. unqualified personnel inputs
- . cost per graduate.

**76 Hodak, G. W., Middleton, M. G., and Rankin, W. C. Institutionalization of Instructional System Development (ISD) in the Naval Education and Training Command: An Organizational Analysis. Technical Report 70, 1979. (50 pages)**

The objectives of this study were to:

- . describe the implementing of Instructional Systems Development (ISD) in the Naval Education and Training Command from an organizational point of view
- . evaluate the organizational aspects of implementing ISD

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- . identify areas which need to be improved and recommend a proposed organization for future Instructional Program Development Centers
- . explore alternatives for implementing ISD in the future.

**77 Cordell, C. C., Nutter, R. V., and Heidt, E. A. Proposed OPNAV Instruction for Test and Evaluation of Navy Training Devices Procured Under RDT&E Funding. Technical Report 71, 1979, AD A073402. (81 pages)**

This study produced a draft OPNAV instruction. The instruction will provide for the efficient and effective acquisition, evaluation, and acceptance of training devices acquired with RDT&E funds. The specific objectives of this study were:

- . identify current factors in all services concerning acquiring, evaluating, and accepting training devices
- . develop a system for classifying training devices which can be used to evaluate them
- . prepare, coordinate, and revise a proposed OPNAV instruction.

**78 Lin, B. W., and Hodak, G. W. Automated Course Scheduling System for Naval Training. Technical Report 72, 1979, AD A071576. College of Engineering, Rutgers University, Piscataway, New Jersey 08854 - Contract No. N61339-78-C-0029 (98 pages)**

The Automated Course Scheduling System (ACSS) was developed to relieve Naval training personnel from the necessity of using the labor-intensive manual scheduling process. It would also provide the capability of studying all possible schedules to achieve better use of school resources.

The objectives of this study were to:

- . describe the structure of the ACSS and its elements along with the logic within each element
- . provide a user's guide to familiarize Navy training personnel with the use of the ACSS
- . document the programming details of the ACSS.

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- 79 Middleton, M. G., Rankin, W. C., and Hodak, G. W. The CNET Automated Budget System (CABS). Technical Report 73, 1978, AD A073136. (59 pages)

A CNET Automated Budget System (CABS) developed by the Training Analysis and Evaluation Group for the Chief of Naval Education and Training (CNET) is described.

It presents:

- . a guide for Naval Education and Training Command personnel using the CABS in the annual budget preparation process
- . step-by-step procedures using the WANG 2200 VP computer software
- . guidelines for automating and integrating the most critical CNET budget items.

- 80 Henry, J. M., and Michell, G. S. A Conceptual Model for a Navy Enlisted Career Plan. Technical Report 74, 1979. (70 pages)

A conceptual model for a Navy enlisted career plan is presented. The Aviation Electrician's Mate (AE) rating was used as an example of this conceptual model.

Features of the proposed AE plan include:

- . clearly defined professional levels
- . a trackable career plan
- . periodic integrated training.

- 81 Spielberger, C. D., and Barker, L. R. The Relationship of Personality Characteristics to Attrition and Performance Problems of Navy and Air Force Recruits. Technical Report 75, 1979, AD A077437. The University of South Florida, Tampa, Florida - Contract No. MDA 903-77-C-019 (61 pages)

This report describes three studies which were conducted to investigate the:

- . relationship between attrition and personality characteristics of Navy and Air Force recruits
- . development of performance problems during basic recruit training.

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Anxiety, curiosity, anger, and social attitudes were measured in Navy and Air Force recruits who were:

- . high risks for attrition
- . likely to develop academic or disciplinary problems during basic training.

**82 Hall, E. R., and Denton, Carol F. Evaluation of Mess Management Specialist (MS) "A" School Training by Advanced MS NAVEDTRACOM Students and by Fleet MS Personnel. Technical Report 76, 1979, AD A079558. (192 pages)**

This report presents feedback information concerning Mess Management Specialist (MS) "A" School training. Presented in this report are data concerning:

- . how relevant MS "A" School training was for graduates' fleet job assignments
- . how well MS "A" School graduates perform job tasks after MS training.

Also, a part of this report discusses:

- . how equivalent are feedback data obtained from Naval Education and Training Command school sources vs. fleet sources
- . how comparable are feedback data obtained from sea vs. shore environments.

**83 Swope, W. M., Yelvington, Cynthia, and Corey, J. M. Incremental Costing Model for Use with the CNET Per Capita Course Costing Data Base: System I. Technical Report 77, 1979, AD A081759. (105 pages)**

An incremental costing model was developed. The model was designed to estimate the marginal cost for courses in the Chief of Naval Education and Training Per Capita Cost to Train Data System. The model provides the capability to:

- . determine the changes in costs as the number of average on-board students changes
- . calculate cost changes at the course, division, department, and activity level
- . consider time as it relates to the ratio of fixed to variable costs
- . allow for direct cost inputs for cost changes

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- . estimate cost changes as a result of incrementing or decrementing the training load
- . consider training capacities when estimating cost changes which result from changing the training load
- . be programmed on a minicomputer and integrated with the existing Per Capita Cost Data System. This is done so that it can give timely estimates of cost changes resulting from expected changes in course training levels.

84 Zajkowski, M. M., Heidt, E. A., Corey, J. M., Mew, Dorothy V., and Micheli, G. S. An Assessment of Individualized Instruction in Navy Technical Training. Technical Report 78, 1979, AD A080183. (83 pages)

This study was conducted to:

- . determine the current status of individualized instruction in the Navy and other military services
- . identify the factors influencing its effectiveness
- . identify present or potential problem areas
- . recommend strategies/policies to improve individualized instruction in Navy technical training.

Specific recommendations are discussed in the following areas:

- . management information systems
- . training of instructors and managers
- . terminology
- . student-instructor incentives
- . cost benefit analyses
- . further study requirements.

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- 85 Kincaid, J. P., and Curry, T. F., Jr. Development and Evaluation of a Remedial Reading Workbook for Navy Training. Technical Report 79, 1979, AD A079288. The workbook, Improving Your Navy Reading Skills, contained in this report was also published as NAVEDTRA 37081, S/N 0502-LP-185-4050. It can be obtained from: Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.. (148 pages)

This report describes the:

- . development of a Navy-relevant remedial reading workbook
- . evaluation of the workbook in the Navy's remedial reading program
- . compatibility of the workbook with the Academic Remedial Training curriculum.

The entire workbook is contained in the appendix.

- 86 Pearson, T. E., Park, C. S., Gardner, J. H., and Mac Keraghan, L. R. Student Flow Simulation Model for Navy Consolidated Electronic Warfare Training. Technical Report 80, 1980, AD A086882. College of Engineering, Industrial Engineering and Management Systems Dept., University of Central Florida, Orlando, Florida 32816 (58 pages)

A user-oriented, predictive computer model of the Consolidated Navy Electronic Warfare School's (CNEWS) student flow was developed.

The purpose of this study was to:

- . define the modeling problem
- . determine the types of data required for modeling
- . collect the required data
- . develop a document necessary to prepare a procurement package for developing and testing of the model(s) to be developed.

The overall model objectives are to give planners the means to determine:

- . the maximum, minimum, and average expected times-to-train for each type of student
- . the trade-offs involved in selecting one type of curriculum structure over

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another

- . the training material/media/facility needs to meet output requirements in terms of a proper student mix.

A final objective of the model is to make it compatible with the Navy's CMI computer system (Honeywell 66/4400).

- 87 Curry, T. F., Jr., and Copeland, D. R. Selection, Training, and Utilization of Navy Recruit Training Command Officers. Technical Report 81, 1980, AD A086403. (76 pages)

Selecting, training, and maximizing the use of officers assigned to the Navy Recruit Training Commands (RTCs) is addressed in this report.

This study examines:

- . the current orienting and indoctrinating programs for Navy RTC officers
- . how these programs compare with similar activities in the other military services
- . the best training and orienting of officers assigned to Navy RTC divisions.

The objectives of this study are to:

- . develop recommendations for selecting and maximizing the use of officers assigned to the RTCs
- . develop a comprehensive orienting and indoctrinating program for officers newly assigned to the RTCs
- . prepare a proposed topic curriculum outline for training the officers assigned to the RTCs.

- 88 Cordell, C. C., and Nutter, R. V. A Review of Fire Fighting Training in the Naval Education and Training Command. Technical Report 82, 1980. (86 pages)

Major current and anticipated problems in three primary areas of Navy fire fighting training are identified:

- . management of training
- . shortfalls in required training



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- . improper or inefficient training.

The data obtained were organized to determine:

- . the extent to which fire fighting training is achieving its goals
- . the need for additional training requirements
- . management considerations for improving training.

- 89 Kincaid, J. P., Aagard, J. A., and O'Hara, J. W. Development and Test of a Computer Readability Editing System (CRES). Technical Report 83, 1980, AD A096873. (144 pages)

Described in this report is a computer readability editing system (CRES) to improve the ease of comprehending Navy technical manuals and training materials. The following aspects of CRES are described:

- . development of CRES
  - .. system hardware
  - .. software features of the system
    - ... readability formula
    - ... common word list
    - ... supplementary technical word list
    - ... word substitution lists
  - .. editing process
- . test of the CRES
  - .. test passages
  - .. evaluation of CRES features
    - ... readability formula
    - ... common word list
    - ... word substitution lists.

- 90 Polino, Anne M., and Braby, R. Learning of Procedures in Navy Technical Training: An Evaluation of Strategies and Formats. Technical Report 84, 1980, AD A084067. (114 pages)

Traditional and innovative learning procedures that can be used in Navy schools and in onboard training were evaluated. This study compares the following

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learning procedures:

- . the type of lesson material now being used in Navy schools
- . a job aid being called for in some recent Department of Defense contracts
- . innovative lesson material based on learning guidelines in the Interservice Procedures for Instructional Systems Development (NAVEDTRA 106A).

This study compared the effectiveness of three types of handbooks used in learning to perform procedural tasks:

- . the traditional narrative presentation
- . the job performance aid
- . the learning aid.

91 Middleton, M. G., Hodak, G. W., and Guitard, C. R. The CNET Automated Budget System (CABS) II. Technical Report 85, 1980, AD A089847. (300 pages)

An improved and expanded version of the CNET Automated Budget System (CABS) that was described in TAEG Report No. 73 is described. This document describes the automating and integrating of the following CNET budget exhibits:

- . expense elements
- . base operations
- . travel
- . inflation
- . band increments
- . civilian personnel
- . reimbursable
- . human goals
- . military end strength
- . current year unfunded requirements
- . audiovisual.

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This report is intended to be a guide for Naval Education and Training Command personnel in preparing the annual O&MN budget.

- 92     **Salas, E., Kincaid, J. P., and Ashcroft, Nancy. An Assessment of Hispanic Recruits Who Speak English As a Second Language. Technical Report 86, 1980, AD A087104. (37 pages)**

Problems that Hispanics face during recruit training primarily because of English language deficiencies are discussed in this document. The study considered the following:

- . ethnic background
- . education level
- . language proficiency skills
- . recruit academic performance
- . attrition
- . costs and potential benefits of establishing an English language training program.

- 93     **McDaniel, W. C., Scott, P. G., and Browning, R. F. Operational Performance of P-3 Pilots as a Function of Variations in Fleet Readiness Training. Technical Report 87, 1980, AD A086883. (20 pages)**

The long-term effects of simulator training at the Fleet Readiness Squadron on later performance in operational squadrons were examined. This report presents:

- . operational performance data suitable for measurement of training effectiveness
- . the advantages of simulator trained pilots over nonsimulator trained pilots.

- 94     **Keeler, F. L. System for Computer Automated Typesetting (SCAT) of Computer Authored Texts. Technical Report 88, 1980, AD A088638. (151 pages)**

A System for Computer Automated Typesetting (SCAT) which inserts special graphic symbols in programmed instructional materials is described. This report presents:

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- . an overview of the SCAT
- . component requirements of SCAT
- . SCAT flow chart
- . examples of SCAT input data
- . composed SCAT textstream
- . typeset output from using SCAT
- . technical approach used in developing SCAT
- . rationale used in the software decisions in developing SCAT
- . factors impacting on the automated preparation of computer authored programmed instructions through the typesetting process
- . a glossary to aid communications between the SCAT user and the typographer.

- 95 Micheli, G. S., Morris, C. L., Jr., and Swope, W. M. Computer Based Instructional Systems--1985 to 1995. Technical Report 89, 1980, AD A088702. (63 pages)

This report presents a study of:

- . computer based instruction (CBI), specifically:
  - .. major categories of CBI
  - .. trends in CBI
  - .. an economic projection of CBI developments
  - .. four CBI alternatives
  - .. an assessment of these alternatives in terms of key system characteristics
- . initiatives for improvement of Navy instructional management in the 1985 to 1995 time frame.

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- 96 Mew, Dorothy V. The Prediction of Performance in Navy Signalman Class "A" School. Technical Report 90, 1980, AD A090286. (64 pages)

Described in this report is a study which:

- . developed a selection model for predicting signalman performance in sending and receiving Morse code
- . evaluated several training strategies to promote the learning of Morse code.

The study was designed to:

- . identify specific nonverbal factors which may account for the different performance of various aptitude groups in receiving visual Morse code
- . validate selection tests being used to assign signalmen.

- 97 Stubbs, W. B., and Pearson, T. E. Application of Random Access Video Programs in Navy Electronic Warfare Training. Technical Report 91, 1980, AD A091211. (70 pages)

Presented are the results of a study in which interactive instructional television training programs for electronic warfare (EW) signal recognition training were developed. The report describes:

- . the delivery medium selected
- . rationale for use of the video media to be applied in EW training
- . the video system selected for the Consolidated Navy EW School (CNEWS)
- . progress in implementing previous EW TAEG reports (TAEG Report No. 4, 1972 and TAEG Report No. 56, 1978) and planning associated with each.

- 98 Hall, E. R., and Hughes, H., Jr. A Structured Interview Methodology for Collecting Training Feedback Information. Technical Report 92, 1980, AD A097671. (102 pages)

Summarized in this final report is a study which assessed how feasible and desirable it would be to obtain training feedback information from petty officers attending advanced schools within the Naval Education and Training Command.

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This report summarizes six previous TAEG reports which provided evaluation data on the following ratings: Aviation Machinist's Mate, Machinery Repairman, Engineman, Mess Management Specialist, Aviation Electronics Technician, Aviation Fire Control Technician, Aviation Antisubmarine Warfare Technician, Fire Control Technician.

The report also contains:

- . an evaluation of the method developed for collecting feedback data
- . recommendations and procedures for future use of the method.

**99 Pearson, T. E., and Stubbs, W. B. Assessment of Surface Navy ECCM Training, 1975 to 1980. Technical Report 93, 1980, AD A095006. (49 pages)**

This report updates TAEG Report No. 15, Surface Navy ECCM Training Analysis, published in April 1975.

The report provides an update of:

- . the current status of surface Navy ECCM training
- . training devices and aids
- . fleet ECCM readiness
- . recommendations for improving ECCM readiness.

**100 Rankin, W. C., and McDaniel, W. C. Computer Aided Training Evaluation and Scheduling (CATES) System: Assessing Flight Task Proficiency. Technical Report 94, 1980, AD A095007. (24 pages)**

A method to determine the proficiency of Fleet Replacement Squadron student aviators is proposed in this report. The Computer Aided Training Evaluation Scheduling (CATES) system is a computer managed method to prescribe training programs based on individual student performance.

The report describes the:

- . problems encountered in determining proficient task performance of students
- . conceptual development of the CATES system as a method that may be used to determine proficiency.

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- 101 Mac Keraghan, L. R., Loomis, H. W., and Duren, B. G. Training Program Forecast Model: A Situational Analysis. Technical Memorandum 74-1, 1974. (48 pages)

This report presents the results of a situational analysis of the Navy Training Plan (NTP) process. The report describes the:

- . NTP process
  - .. generating training requirements
  - .. generating the training plan
  - .. forecasting and managing the training plan
- . purpose of the NTP
  - .. user requirements
  - .. case study: the Consolidated Navy Electronics Warfare Training Plan
  - .. deficiencies in the NTP process.

- 102 Rankin, W. C. Task Description and Analysis for Training System Design. Technical Memorandum 74-2, 1975. (59 pages)

The intention of this report is to aid in the designing of training systems by communicating and clarifying basic ideas about describing job tasks and their analysis. This report presents:

- . two fundamental data collection approaches discussed in terms of their advantages and disadvantages
- . behavioral approaches or analytic basis for analysis
- . integration of collecting data and formulating behavioral objectives
- . selected current efforts in Navy training task analysis.

- 103 Copeland, D. R., and Nutter, R. V. Trends in Industrial Training Management. Technical Memorandum 75-1, 1975. (31 pages)

This study investigated and summarized trends taking place in managing training in selected industrial organizations. This study addressed the following aspects of training industry:

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- . corporate education and training policy
- . management emphasis on training forecasting and planning
- . cost of personnel and the training budget
- . shortages of skilled personnel
- . advances in technology
- . manpower training investment
- . management position concerning employee development in today's labor force
- . personnel and training management information system
- . corporate training management
- . corporate training staff
- . corporate subelement management and staff.

104 Cordell, C. C., and Moore, E. O., Jr. Use of the Operational Evaluation in the Development of Training Systems: Generalizations Derived from a Case Study. Technical Memorandum 75-2, 1975. (54 pages)

Approaches for using the system development operational test and evaluation (OT&E) phase to obtain data for developing follow-on and replacement training were explored. This report describes a method to provide data to CNET on the adequacy and suitability of contractor-conducted training. This method provided CNET with the capability to assess the impact a new weapon system has on training. On the other hand, this method would provide COMOPTEVFOR with CNET's training expertise.

This report contains a proposed CNET instruction establishing policies and procedures for CNET Functional Commanders. It asks them to provide assistance during the training evaluation phase of OT&E.

105 Cordell, C. C., Nutter, R. V., Okraski, H. C., Aagard, J. A., Parrish, W. F., Jr., and Moore, E. O., Jr. Evaluation of the 1200 PSI Simulator. Technical Memorandum 75-3, 1975. (34 pages)

The purpose of this study was to evaluate the proposed 1200 PSI simulator, Device 19E22. More specifically, this study investigated the:

- . probability that the training device would meet the training objectives



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- . cost to produce a device that would meet the training objectives.

- 106     Okraski, H. C., and Parrish, W. F., Jr. Acquisition Cost Estimating Using Simulation. Technical Memorandum 75-4, 1975, AD A015624. (29 pages)

This report describes the Acquisition Cost Estimating Using Simulation (ACES) model developed by the Training Analysis and Evaluation Group. This report provides a technique for incorporating uncertainty and risk into the acquisition cost estimating procedure. The estimates are presented as a range of values, encompassing engineering, manufacturing, and logistic support estimates. This memorandum shows how feasible the technique is to use and presents some of its limitations.

- 107     Pearson, T. E., and Moore, E. O., Jr. Consolidated Electronic Warfare Operator Training System Cost Analysis. Technical Memorandum 75-5, 1975. (127 pages)

A cost analysis of the electronic warfare (EW) operator training system in the Navy is provided. More specifically, this report provides:

- . amplifying data of the original EW operator training system. (The original cost data was obtained in 1972.)
- . a life cycle cost analysis of the EW operator training system. This analysis is based on 1975 data as presented in the Navy Consolidated Electronic Warfare Training Plan.

This report presents an integrated cost analysis of all data obtained by TAG to date on the EW operator training system.

- 108     Middleton, M. G., Rankin, W. C., Swope, W. M., Cordell, C. C., and Parrish, W. F., Jr. Economic Analysis of the Instructional Systems Development Plan. Technical Memorandum 75-6, 1975. (64 pages)

Presented in this document is a preliminary cost analysis of the Instructional Systems Development (ISD) plan. It represents a quick reaction cost analysis of the expected investment return when implementing the ISD model in the Naval Education and Training Command. Primary emphasis focused on the following:

- . savings when the ISD concept has been implemented
- . payback that can be realized with the use of ISD.

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- 109 Swope, W. M., and Cordell, C. C. A Study to Develop Management Indices for CNET, Phase I--Personnel Indices. Technical Memorandum 75-7, 1975. (66 pages)

Personnel resource indices were formulated. The objectives of this study were:

- . develop a set of manpower use indices which would give CNET information required in personnel management
- . develop manpower use indices using data gathered from existing reporting systems.

These indices are intended to provide management with information to assist in managing personnel.

- 110 Swope, W. M., and Cordell, C. C. Training Resource Classifications: Direct-Indirect and Fixed-Variable Cost Categories. Technical Memorandum 76-1, 1976, AD A029179. (20 pages)

This memorandum:

- . discusses the difficulties encountered in using direct, indirect, fixed, and variable resource cost categories
- . presents a set of definitions which attempts to remove the ambiguities associated with their use.

- 111 Swope, W. M., and Cordell, C. C. A Study to Develop Management Indices for the Chief of Naval Education and Training, Phase II: Capital Resources Indices. Technical Memorandum 76-2, 1976. (49 pages)

Capital resource indices were developed by:

- . separating the budget capital resources from the investment capital resources
- . using data gathered from existing reporting systems
- . making sure they were compatible with the personnel indices developed by TAEG (TAEG Technical Memorandum 75-7).

This reporting developed a set of management indices covering the use of capital resources. The indices will provide:

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- . a set of tools which can be used to identify inefficiencies that exist in the use of training resources
- . useful information for the decision maker in establishing policy, planning long-range training, and managing resources.

- 112     **Branch, K. V., and Staley, J. D. Design of Training Systems Training Requirements Analysis Model User's Guide and Program Documentation. Technical Memorandum 76-3, 1976. International Business Machines, Cape Canaveral, FL - Contract No. N61339-73-C-0097 (110 pages)**

The purpose of this report is to provide:

- . a user's guide for the Training Requirements Analysis Model (TRAM) in the interactive mode
- . necessary information to generate the TRAM data base.

- 113     **Bellamy, H. J. Design of Training Systems, Application of the Individualized Training Simulation System (ITSS) at the Basic Electricity and Electronics (BE&E) School, San Diego, CA. Technical Memorandum 76-4, 1976. International Business Machines, Cape Canaveral, FL - Contract No. N61339-73-C-0097 (22 pages)**

Summarized in this report are the results of a field test conducted to determine the usefulness of the Individualized Training Simulation System (ITSS) to Naval training. This report describes the following aspects of the ITSS field test:

- . the ITSS was reviewed to determine how applicable it was to current problems in course development and management
- . the ITSS was modified to include the capabilities necessary to apply it to the BE&E School
- . the modified ITSS was reviewed by field test users
- . an aggregate entity flow model of the BE&E School was constructed
- . the model was applied to the problem of projecting school throughput for different course group and learning module distributions
- . a preliminary assessment of applying the model is presented.

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- 114 Yanko, R. E., and Lindahl, W. H. An Application of Linear Programming to the Naval Education and Training Command. Technical Memorandum 76-5, 1976. International Business Machines, Cape Canaveral, FL - Contract No. N61339-73-C-0097 (30 pages)

This technical memorandum presents:

- . the Systems Capabilities/Requirements and Resources (SCRR) model description
- . a detailed explanation of the functional flow of the model
- . the assumptions used both in the design and application of the model
- . description of the input parameters
- . detailed discussion of the output parameters with sample listings and sensitivity analysis descriptions.

- 115 Middleton, M. G., Parrish, W. F., Jr., Green, E. K., and Rankin, W. C. Navy Campus for Achievement Automated Data System--A Brief Review and Proposal for Analysis and Design. Technical Memorandum 76-6, 1976. (27 pages)

The results of a quick reaction analysis are presented. It explored whether it would be desirable and cost effective to develop an automated education and training record for all active Navy personnel. This report describes the following aspects of the Navy Campus for Achievement (NCFA) Automated Data System (ADS):

- . current user/operator/management opinion
- . present NCFA ADS
- . Army experience and status
- . potential implications of Navy-wide educational training ADS.

A full-scale automated data processing system analysis and design proposal is included.

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- 116 Middleton, M. G., Swope, W. M., Rankin, W. C., Green, E. K., and Parrish, W. F., Jr. Cost/Benefit Analysis of the Instructional Systems Development Implementation Plan (FY 77 to FY 82). Technical Memorandum 76-7, 1976. (165 pages)

The objective of this study was to determine the costs and benefits to be derived from implementing the instructional systems development process. The following were discussed relevant to the approach:

- . rationale
- . nonquantifiable benefits
- . assumptions and data source
- . analytical model.

- 117 Pearson, T. E., and Rizzo, W. A. A Technique for Achieving Budget Item Prioritization. Technical Memorandum 77-1, 1977. (69 pages)

A technique for prioritizing items in the Chief of Naval Education and Training's annual Program Objective Memoranda (POM) submissions was developed. Major Navy commands annually submit POMs which recommend items to be budgeted within their command. Two features of this report were:

- . examining existing techniques and practices for prioritizing POM submissions
- . presenting a Budget Item Prioritization (BIP) technique developed by the TAEG based on existing techniques for human decision making modeling.

- 118 Rizzo, W. A. Demonstration and Evaluation of a Microfiche-Based Audio/Visual System. Technical Memorandum 77-2, 1977, AD A040249. (34 pages)

This study:

- . demonstrated the sound/microfiche as a substitute for sound/slides in a technical training environment
- . sampled the attitudes and recommendations of instructors and trainees about this medium
- . made cost comparisons between alternative audio/visual systems.

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- 119 Braby, R. Training Requirements for the Naval Technical Information Presentation Program: A Needs Assessment. Technical Memorandum 77-3, 1977, AD A040260. (94 pages)

Establishing a dialogue between personnel of the Naval Technical Information Presentation Program (NTIPP) and the Naval Education and Training Command (NAVEDTRACOM) concerning designing technical manuals was the intention of this memorandum. The NTIPP is a Chief of Naval Material/Systems Command program to improve maintenance handbooks and other types of technical data provided with Navy equipment. The following issues are presented as being of mutual interest to both commands:

- . developing maintenance handbooks to better support:
  - .. classroom training
  - .. factory training
  - .. onboard training
- . reducing the cost of producing training manuals.

- 120 Parrish, W. F., Jr., and Middleton, M. G. Foreign Military Training Management Information System. Technical Memorandum 77-4, 1977. (189 pages)

This memorandum describes a Foreign Military Training Management Information System (FMTMIS) developed by the Training Analysis and Evaluation Group. The FMTMIS is a management information system which schedules courses and tracks the progress of foreign students who attend U.S. Navy schools. The report presents user information on how to edit, sort, and print student and course data.

- 121 Cordell, C. C., Nutter, R. V., and Miller, H. Precommissioning Training. Technical Memorandum 77-5, 1977, AD A043169. (54 pages)

The purpose of this study was to determine if it would be feasible for the Navy to provide all or part of precommissioning training. The objectives of this study were to:

- . evaluate the cost and training effectiveness of the Combat Systems Maintenance Management Training (CSMTT) course given to the USS Texas (CGN-39) crew
- . formulate an approach to decide whether all or part of the CGN-39 CSMTT course could be used cost effectively in Navy precommissioning training.

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- 122 Swope, W. M., and Green, E. K. Cost/Benefit Analysis of the Instructional Systems Development Plan. Technical Memorandum 77-6, 1977. (102 pages)

This study reassessed the economic impact of five fully funded and staffed Instructional Program Development Centers. The following were discussed relevant to the approach:

- . rationale
- . nonquantifiable benefits
- . assumptions and data sources
- . analytical model.

A previous TAEG report on this subject is TAEG Technical Memorandum 76-7.

- 123 Hall, E. R., Denton, Carol F., and Papetti, C. J. Description of Selected Training Appraisal Programs Within the Naval Education and Training Command. Technical Memorandum 77-7, 1977. (57 pages)

The effectiveness of different types of training appraisal programs within the Naval Education and Training Command was compared and analyzed. This report discusses the following aspects of training appraisal documentation and practices:

- . curriculum data
- . appraisal systems
- . internal evaluation
- . external evaluation
- . feedback to fleet.

- 124 Rankin, W. C., Middleton, M. G., and Hodak, G. W. Navy-Wide Training and Education Record System (TERS): a Feasibility and Interest Assessment Study. Technical Memorandum 77-8, 1977. (81 pages)

The feasibility of developing a Training and Education Record System (TERS) was investigated. The TERS would be a consolidated source of training and education information for all Navy personnel. This report discusses the following

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topics:

- . current sources of training/education information
- . current uses of training/education information
- . perceived benefit and use of TERS
- . organizational interest in developing TERS.

125 Hall, E. R., and Denton, Carol F. Aviation Electrician's Mate "A" School Training Assessment Data. Technical Memorandum 77-9, 1977. (265 pages)

Information concerning the value of Aviation Electrician's Mate (AE) "A" School training is presented. More specifically, this report sought to determine:

- . how well the AE "A" School prepares the student for specific requirements of his job
- . whether all of the AE "A" School training given is necessary for the AE's job.

126 Denton, Carol F., and Hall, E. R. Boiler Technician "A" School (1200 PSI) Training Assessment Data. Technical Memorandum 78-1, 1978. (115 pages)

This memorandum presents information concerning the value of Boiler Technician (BT) "A" School (1200 PSI) training. More specifically, this report sought to determine:

- . how well the BT "A" School prepares the student for specific requirements of his job
- . whether all of the BT "A" School training given is necessary for the BT's job.

127 Platt, W. A., and Stubbs, W. B. A Media Analysis of Electronic Warfare Training in Support of the Consolidated Navy Electronic Warfare Training Development Program. Technical Memorandum 78-2, 1978. (32 pages)

The findings and recommendations of an analysis of the Electronic Warfare (EW) School's media needs are provided. The objectives of the study were:

- . relate the basic tasks of EW to selecting appropriate instructional



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strategies

- . recommend a specific course to develop and procure media
- . recommend a way to obtain cost-effective instructional media.

- 128 Swope, W. M., and Corey, J. M. Interim Cost Model for Estimating Development Costs of Existing Curricula in NAVEDTRACOM. Technical Memorandum 78-3, 1978. (19 pages)

The objective of this study was to develop an immediately useful cost model which could be used to compute the fees foreign governments should pay for Navy course curricula. The following topics are discussed:

- . the costing model
- . estimates of coefficients for interim model
- . modifying the interim cost model in the future.

- 129 Middleton, M. G., Zajkowski, M. M., and Aagard, J. A. The Implementation of Instructional Systems Development in Navy "C" Schools: A Needs Analysis. Technical Memorandum 79-1, 1979. (80 pages)

The alternatives available to "C" schools in meeting their requirement to use the Instructional Systems Development manual (NAVEDTRA 106A) were determined. More specific objectives of this study were to:

- . assess how practical NAVEDTRA 106A is for revising "C" school curricula
- . identify the resources now being used to revise "C" school courses
- . determine the type of documents needed to support implementing the concepts and procedures of NAVEDTRA 106A in the Navy "C" schools
- . identify the resources needed to implement NAVEDTRA 106A in the "C" schools.

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- 130     **Browning, R. F., and Scott, P. G. Feasibility of Consolidating USN/USMC A-6E Aircrew and Enlisted Training Within Existing USN Fleet Readiness Squadrons. Technical Memorandum 79-2, 1979. (98 pages)**

This study developed and organized relevant data to determine how feasible it would be to consolidate A-6E aircrew and enlisted replacement training. The report discusses the following topics concerning consolidating A-6E aircrew and enlisted replacement training:

- . training environment and facilities
- . analysis of training requirements
- . personnel support requirements for consolidating Navy and Marine Fleet Readiness Training
- . aircraft requirements
- . Fleet Replacement Aviation Maintenance Personnel (FRAMP) Program
- . cost estimates associated with consolidating replacement pilot and bombardier/navigator training.

- 131     **Hughes, H., Jr., and Hall, E. R. Evaluation of Aviation Machinist's Mate (AD) A1 Course. Technical Memorandum 79-3, 1979. (83 pages)**

Information concerning the job performance of recent Aviation Machinist's Mate (AD) A1 graduates is presented in this report. The information was collected from petty officers who were currently students at instructor training or "C" School. Specifically, this report sought to:

- . determine how well the AD A1 course prepares the student for specific job requirements
- . describe job performance problem areas in enough detail to promote:
  - .. identifying problems that should be addressed in the course curriculum
  - .. prioritizing the problems for applying training remediation resources
  - .. developing specific curriculum improvements.

A separately bound volume, Supplement I, to this report contains complete summaries of all feedback data collected. Also, copies of worksheets used by subject matter specialists to evaluate the quality and usefulness of the feedback data are presented in the supplement.

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- 132     Denton, Carol F., and Hall, E. R. Evaluation of Machinery Repairman (MR) A School. Technical Memorandum 79-4, 1979. (132 pages)

This memorandum presents information concerning the value of the Machinery Repairman (MR) A course. More specifically, this report sought to:

- . determine how well the MR-A course prepares the student for specific requirements of his job
- . describe job performance problem areas in enough detail to promote:
  - .. identifying training problems that should be discussed during on-the-job training
  - .. developing specific curriculum improvements
- . determine whether all of the MR-A course training given is necessary for the MR's job.

- 133     Hughes, H., Jr., and Hall, E. R. Evaluation of Engineman (EN) Class "A" Course. Technical Memorandum 79-5, 1979. (87 pages)

Presented in this memorandum is information concerning the job performance of recent Engineman (EN) Class A students. The information was collected from petty officers who were currently students at instructor training or "C" School. Specifically, this report sought to:

- . determine how well the EN-A course prepares the student for specific job requirements
- . describe job performance problem areas in enough detail to promote:
  - .. identifying problems that should be addressed in the course curriculum
  - .. prioritizing the problems for applying training remediation resources
  - .. developing specific curriculum improvements.

A separately bound volume, Supplement I, to this report contains complete summaries of all feedback data collected. Also, copies of worksheets used by subject matter specialists to evaluate the quality and usefulness of the feedback data are presented in the supplement.

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- 134 Trotta, C. M. Military Service Reporting System. Technical Memorandum 79-6, 1979, AD A077051. (123 pages)

The automated Military Service Reporting System (MILSERV) developed by the Training Analysis and Evaluation Group is described in this document. The system is intended to be used by the Chief of Naval Education and Training Code N-6 and the functional commands who are required to submit data for this report to CNET. NAVCOMPT Form 2182, Military Service Report, is used for data submission. The MILSERV software is a package of seven programs:

- . system start-up
- . data merge
- . activity file edit/print
- . checklist print
- . data base initialization/edit
- . data entry verification
- . summary report print.

- 135 Corey, J. M., and Swope, W. M. An Incremental Costing Method for Resource Allocation in Navy Training. Technical Memorandum 79-7, 1979, AD A078685. (29 pages)

This study examined how feasible it would be to collect incremental costing information by surveying cost accounting centers. The objectives of the study were:

- . compare the alternative cost concepts of total, average, and incremental costs
- . demonstrate that incremental cost is the appropriate alternative to use for managerial decision making
- . demonstrate the use of the method in a typical training environment.

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- 136 Swope, W. M., and Morris, C. L., Jr. Economic Analysis of Selected CMI Test Input Alternatives. Technical Memorandum 80-1, 1980. (28 pages)

This report is an economic analysis of alternative test input systems in the existing Navy Computer Managed Instruction system. The two options selected for detailed economic analysis were to:

- . continue with an optical scanning vendor with a renewed rental/maintenance contract
- . adopt, modify, and implement an electronic test input system which functionally replaces the present OPSCAN-17 system.

- 137 Hodak, G. W., Rankin, W. C., and Guitard, C. R. Landing Signal Officer (LSO) Information, Status, and Tracking System (LISTS). Technical Memorandum 80-2, 1980. (48 pages)

This document describes the Landing Signal Officer Information, Status, and Tracking System (LISTS) developed by TAEG to monitor LSO training. The report presents the following aspects of LISTS:

- . an overview
- . major system options
- . an operating guide.

- 138 Heller, G. H., and Swope, W. M. User's Manual for the Incremental Costing Model Developed for Use with the CNET Per Capita Course Costing Data Base. Technical Memorandum 80-3, 1980. (58 pages)

This is a user's manual for the incremental costing model developed for use with the CNET per capita course costing data base. This manual outlines how to use the computer programs which are made up of:

- . programs needed for preparing and updating the various files necessary to operate the cost model
- . the cost model program itself
- . a program to print selected fields of the per capita data base.

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- 139 Hall, E. R., and Hughes, H., Jr. Evaluation of Avionics Technician Class A1 Course. Technical Memorandum 80-4, 1980. (135 pages)

Information concerning the value of Avionics Technician (AV) "A" School training is presented in this report. More specifically, this report sought to determine:

- . how well the AV "A" School prepares the student for specific requirements of his job
- . whether all of the AV "A" School training given is necessary for the AV's job.

- 140 Hughes, H., Jr., and Hall, E. R. Evaluation of Fire Control Technician Class "A" Phase I Course. Technical Memorandum 80-5, 1980. (94 pages)

This memorandum presents information concerning the job performance of recent Fire Control Technician (FT) "A" School course graduates. The information was collected from petty officers who were currently students at instructor training or "C" School. Specifically, this report sought to:

- . determine how well the FT "A" School prepares the student for specific job requirements
- . describe job performance problem areas in enough detail to promote:
  - .. identifying problems that should be addressed in the course curriculum
  - .. prioritizing the problems for applying training remediation resources
  - .. developing specific curriculum improvements.

- 141 Trotta, C. M. Resource Authorization System. Technical Memorandum 80-6, 1980. (30 pages)

Described in this memorandum is the automated Resource Authorization System (RAS) developed by the Training Analysis and Evaluation Group (TAEG). The system is intended to be used by the Chief of Naval Education and Training and the functional commands who issue resource authorization and expense limitations. The RAS software is a package of eight programs:

- . activity file edit/print program
- . NAVCOMPT Form 2168 Edit Program

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- . printing the Resource Authorization
- . printing worksheets
- . printing the change file
- . standard remarks program
- . printing the NAVCOMPT forms 2168 issued
- . editing the change file.

- 142 Kincaid, J. P., Salas, E., Braby, R., and Martin, J. Field Test of Guidelines for the Development of Memory Aids in Technical Training. Technical Memorandum 80-7, 1980, AD A094891. (36 pages)

This study determined if Navy authors of instructional material could create effective memory aids to use in rote learning of this material. The report describes the following topics:

- . developing two training booklets incorporating memory aids
  - .. Aids to Navigation
  - .. Proper Use of Sound Powered Phones
- . testing these booklets in a classroom setting.

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- 143 Heidt, E. A., Zajkowski, M. M., and Hodak, G. W. A Plan for the Evaluation of a Revised Core Curriculum for the Naval Reserve Officers Training Corps. Technical Note 1-79, 1979. (21 pages)

The results of evaluating the short- and long-term impact of a suggested change to the NROTC core curriculum are presented in this report.

The following objectives were used to guide the study:

- . assess the impact of the proposed curriculum on NROTC accession patterns and graduate performance during Navy follow-on training
- . identify academic knowledges that support acquiring professional/military skills in the NROTC program and in Navy follow-on training
- . design a management information system that collects, stores, and analyzes the data needed for the study.

- 144 Braby, R. Computer-Aided Authoring of Instructional Materials. Technical Note 2-79, 1979. (16 pages)

This is a paper delivered at the annual meeting of the American Educational Research Association in San Francisco, April 8-12, 1979. The paper describes the computer-aided authoring technique for generating symbol learning materials. Three related issues are discussed:

- . the training effectiveness of computer authored materials
- . the cost-effectiveness of computer authored materials
- . what can reasonably be expected from computer authoring.

- 145 Swope, W. M., and Green, E. K. Foreign Military Sales--Average Cost Pricing or Marginal Cost Pricing--A Theoretical Perspective. Technical Note 3-79, 1979. (10 pages)

This paper offers a theoretical explanation of why the current foreign military training pricing policies do not meet the results required by Congress. The following four alternative policies for pricing foreign military training are discussed and evaluated:

- . average cost pricing



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- . marginal cost pricing
- . maximum revenue pricing
- . pricing for other social, economic or political objectives.

**146 Hall, E. R., and Hughes, H., Jr. Guidelines for Preparing Feedback Questionnaire Task Statements. Technical Note 4-79, 1979. (33 pages)**

Guidelines for CNET training activities to use in developing task statements for feedback questionnaires are provided. The following general guidelines are discussed:

- . use short abbreviations cautiously
- . use short words and phrases
- . begin the task statement with a present tense action verb
- . make each task statement specific
- . make each task statement a complete sentence
- . use simple statements without qualifiers
- . use comparable modifiers for significant tasks for greater specificity
- . avoid stating tasks that are obviously too specific or trivial
- . avoid listing tasks that are too general
- . avoid redundancy and unnecessary qualifier phrases.

**147 Smode, A. F. Flight Hour Reductions in Fleet Replacement Pilot Training Through Simulation. Technical Note 5-79, 1979, AD A070826. (22 pages)**

This is an invited paper presented at the conference, "50 Years of Flight Simulation," sponsored by the Royal Aeronautical Society and the American Institute of Aeronautics and Astronautics, London, England, 23-25 April 1979. The theme of the paper is that flight simulators can be employed efficiently and effectively in military flight training. A three year experimental program is described which demonstrates the value of the simulator as a substitute environment for learning P-3 aircraft tasks. An account of the major facet of the program is provided dealing with the receipt and integration of the flight

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simulator into the ongoing Fleet Replacement Squadron (FRS) training. The intent of the program was to:

- . determine the potential of the 2F87F simulator as a substitute environment for learning aircraft tasks
- . integrate the new simulator into the fleet replacement pilot training program
- . reduce in-flight training time in qualifying pilots for assignment to operational P-3 squadrons.

- 148     Hodak, G. W., Rankin, W. C., and Middleton, M. G. Analysis of Base Operations Support Functions, Naval Training Center, Orlando: Public Works Department. Technical Note 6-79, 1979. (27 pages)

Described in this report is an organizational analysis of the Naval Training Center, Orlando, Public Works Department. The objectives of the study were:

- . describe how the Public Works Department operates
- . identify this department's functional needs
- . analyze the department's current resource support and identify additional needs
- . identify the trends in the department's operation and personnel and project their impact
- . recommend options to increase the effectiveness/efficiency of the department's operations
- . analyze the management information systems currently used to determine how adequately they meet the department's needs.

- 149     Copeland, D. R., Swope, W. M., and Morris, C. L., Jr. Analysis of Base Operations Support Functions, Naval Training Center, Orlando: Security Department. Technical Note 7-79, 1979. (109 pages)

This study analyzed the organization, operations, and functions of the Naval Training Center, Orlando, Security Department. The objectives of the study were:

- . determine the efficiency of current operations based on directives, instructions, standards and other policy documents

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- . identify deficiencies in current operations as measured against existing policies and standards
- . identify and quantify those changes in management, policy, and resources needed to remedy existing deficiencies.

150 Papetti, C. J., and Corey, J. M. Cost Estimate for Royal Saudi Naval Forces, Level II Course Materials. Technical Note 8-79, 1979. (128 pages)

Cost estimates for rewriting U.S. Navy training courses for use by the Royal Saudi Naval Forces is provided. This report also:

- . makes explicit the process of producing this type of cost estimate
- . points out the problems that influence the validity of these estimates.

151 Kincaid, J. P., and Curry, T. F., Jr. Job-Related Reading Material: A Navy-Relevant Remedial Reading Workbook. Technical Note 1-80, 1980. (12 pages)

This is a paper delivered at the annual meeting of the American Educational Research Association in Boston, April 7-11, 1980. This report describes a remedial reading workbook to be used in the Navy's remedial reading program. More specifically, this paper describes the following aspects of the remedial reading workbook:

- . development of the workbook
- . evaluation of the workbook
- . outcomes to date.

152 Cordell, C. C., and Nutter, R. V. Review of Fundamental Technical Subject (FTS) Units at Surface Warfare Officers School Command (SWOSCOLCOM). Technical Note 2-80, 1980. (14 pages)

This technical note presents the results of a review of the fundamental technical subject (FTS) units at the Surface Warfare Officers School Command (SWOSCOLCOM). The study reviewed the content of the FTS units and how applicable they were to actual course material in the department head course. The following aspects of the FTS curriculum were reviewed:

- . student population

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- . grade analysis
- . unit analysis.

- 153 Hughes, H., Jr., Beagles, C. A., and Copeland, D. R. Authority of Officers and Petty Officers of the United States Navy (Onboard Instructional Package). Technical Note 3-80, 1980. (103 pages)

A Navy-wide training program addressing the authority of officers and petty officers in the U.S. Navy is presented. The objectives of this study were to develop a:

- . program reemphasizing and clarifying the authority of Naval officers and petty officers and the traditional concept of military authority, responsibility, and accountability
- . stand alone instructional package to be administered to petty officers by their command Master Chief that reflects the needs of individual command requirements.

The instructional package was also designed so that the executive officer could adapt it for the instruction of officers.

- 154 Rankin, W. C., and Hodak, G. W. NATO Seasparrow Missile System: Analysis of Maintenance Task Data. Technical Note 5-80, 1980. (288 pages)

An analysis of maintenance task data for the NATO Seasparrow Missile System is presented. The data were obtained using a task inventory of Fire Control Technician (FT) and Gunner's Mate (GM) tasks in using the Seasparrow missile hardware. The data analysis provides information to evaluate the training relevance and adequacy of the FTs and GMs assigned to the Seasparrow Missile.

- 155 Zajkowski, M. M., Guitard, C. R., and Papetti, C. J. A Directory of Sources of Information and Data Bases on Education and Training. Technical Note 6-80, 1980, AD A091013. (467 pages)

This report integrates sources of information and data bases dealing with education and training in the military, academia, government, and commercial areas. It gives the location, content, and means of access to these sources of information. This directory arranges the data sources in the following way:

- . title directory

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- . keyword directory
- . abstracts.

- 156     **Salas, E., Kincaid, J. P., and Ashcroft, Nancy. Hispanic Recruits in the Navy: An Assessment of Their Skills in English as a Second Language. Technical Note 7-80, 1980. (11 pages)**

This is a paper delivered at the annual meeting of the Mid-South Educational Research Association in New Orleans, November 1980. The paper discusses the problems that Hispanics face during recruit training primarily because of English language deficiencies. The report considered the following:

- . ethnic background
- . educational level
- . language proficiency skills
- . recruit academic performance
- . attrition.

- 157     **Bowman, H. L., Kerr, N. J., and McDaniel, W. C. Numerical Skills of Navy Students: An Evaluation of a Skill Development Workbook. Technical Note 8-80, 1980, AD A094453. (12 pages)**

This is a paper delivered at the annual meeting of the Mid-South Educational Research Association in New Orleans, November 1980. The paper reports the results of a numerical skills workbook field test conducted with Navy recruits in Orlando, Florida. Information is presented about:

- . subjects
- . data sources
- . implementation procedures
- . results
- . developmental activities.

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- 1      Staff Study on Cost and Training Effectiveness of Proposed Training Systems.
- 2      Analysis of the Transfer of Training, Substitution, and Fidelity of Simulation of Training Equipment.
- 3      SSN Tactical Team Training System (U).
- 4      Electronic Warfare Training Analysis.
- 5      Training Analysis of P-3 Replacement Pilot Training.
- 6      Generalized Acoustic Sensor Operator Training: Visual-Phase I.

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- 7      Task Analysis of Pilot, Copilot, and Flight Engineer Positions for the P-3 Aircraft.
- 8      An Evaluation of Ten Techniques for Choosing Instructional Media.
- 11     Training Analysis of P-3 Replacement Pilot and Flight Engineer Training.
- 12     Design of Training Systems Phase I Summary Report.
- 14     Design of Training Systems, Phase I Report, Volumes I and II.

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- 9      Electronic Warfare Maintenance Training Analysis Executive Summary.
- 10     Electronic Warfare Maintenance Training Analysis.
- 13     Application of Simulation to Individualized Self-Paced Training.
- 15     Design of Training Systems Phase II Report.
- 17     Analysis of Commercial Contract Training.
- 18     Computer Managed Instruction in Navy Training.

**1974      Technical Memorandums**

- 101    Training Program Forecast Model: A Situational Analysis.

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- 16     Design of Training Systems Phase II-A Report. An Educational Technology Assessment Model (ETAM).
- 19     Surface Navy ECCM Training Analysis.
- 20     A Technique for Choosing Cost-Effective Instructional Delivery Systems.
- 21     Instructor Training.



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- 22      An Assessment of U.S. Navy Tactical Team Training.
- 23      A Method for Obtaining Post Formal Training Feedback: Development and Validation.
- 24      Procedures for Questionnaire Development and Use in Navy Training Feedback.
- 25      Analysis of Commercial Contract Training for the Navy (Phase II).
- 26      Commercial Contract Training, Navy Area VOTEC Support Center (AVSC) Guidelines.
- 27      Analysis of Commercial Contract Training for the Marine Corps (Phase II).
- 28      Commercial Contract Training, Marine Corps Area VOTEC Support Center (AVSC) Guidelines.
- 30      Military Instructor Training in Transition. Proceedings of an Inter-Service Conference.
- 31      Alternative System Designs for Navy Undergraduate Pilot Training, Post 1975.
- 32      Decision Analysis and Its Application to the Naval Education and Training Command.
- 33      Design of Training Systems Phase III Report.
- 34      Design of Training Systems Program Maintenance Manual: Data Base, ETE, SCRR, and TPF Models.
- 35      Design of Training Systems User's Manual: Data Base, ETE, SCRR, and TPF Models.

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- 37      Design of Training Systems: The Development of Scaling Procedures.

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- 102      Task Description and Analysis for Training System Design.
- 103      Trends in Industrial Training Management.
- 104      Use of the Operational Evaluation in the Development of Training Systems:  
Generalizations Derived from a Case Study.
- 105      Evaluation of the 1200 PSI Simulator.
- 106      Acquisition Cost Estimating Using Simulation.
- 107      Consolidated Electronic Warfare Operator Training System Cost Analysis.
- 108      Economic Analysis of the Instructional Systems Development Plan.
- 109      A Study to Develop Management Indices for CNET, Phase I--Personnel Indices.

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- 29      Learning Guidelines and Algorithms for Types of Training Objectives.
- 36      A Primer on Economic Analysis for Naval Training Systems.

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- 38      DOTS Utility Assessment: The Training Process Flow and System Capabilities/Requirements and Resources Models Operating in the TRAPAC Environment.
- 39      Navy Recruit Training Optimization, Post 1980. Phase I: Current Assessment and Concept for the Future.
- 40      An Evaluation of Microfiche Reader Types for Use with Programmed Instruction.
- 41      Design of Training Systems TRAPAC User's Manual: Data Base, SCRR, and TPF Models.
- 42      Design of Training Systems Phase IV Report.
- 43      Centralized Instructor Training for Naval Technical Training.
- 44      Training Effectiveness Assessment: Volume I, Current Military Training Evaluation Programs.
- 45      Training Effectiveness Assessment: Volume II, Problems, Concepts, and Evaluation Alternatives.
- 47      Ship Handling and Ship Handling Training.
- 50      Computer Managed Instruction at Remote Sites by Satellite: Phase I: A Feasibility Study.

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- 110      Training Resource Classifications: Direct-Indirect and Fixed-Variable Cost Categories.
- 111      A Study to Develop Management Indices for the Chief of Naval Education and Training, Phase II: Capital Resources Indices.
- 112      Design of Training Systems Training Requirements Analysis Model User's Guide and Program Documentation.
- 113      Design of Training Systems, Application of the Individualized Training Simulation System (ITSS) at the Basic Electricity and Electronics (BE&E) School, San Diego, CA.
- 114      An Application of Linear Programming to the Naval Education and Training Command.
- 115      Navy Campus for Achievement Automated Data System--A Brief Review and Proposal for Analysis and Design.
- 116      Cost/Benefit Analysis of the Instructional Systems Development Implementation Plan (FY 77 to FY 82).

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- 46      Design of Training Systems. Computerization of the Educational Technology Assessment Model (ETAM).
- 48      Training Effectiveness Evaluation of Device 2F87F, P-3C Operational Flight Trainer.
- 49      Current Simulator Substitution Practices in Flight Training.

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- 51      Officer Candidate School Curriculum Optimization.
- 52      The Management of Defense System and Equipment Training: A Guide for the Naval Education and Training Command.
- 53      Academic Attrition from Navy Technical Training Class "A" School Courses.
- 54      Evaluation of Microfiche as an Instructional Medium in a Technical Training Environment.
- 55      Computer Managed Instruction at Remote Sites; Phases II-III, A Demonstration Design.
- 56      An Automated Publishing System for the Naval Education and Training Command.
- 57      Demonstration of a Methodology for Classifying Naval Training Courses.
- 58      An Heuristic Approach for the Scheduling of Navy Training Courses.

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- 117      A Technique for Achieving Budget Item Prioritization.
- 118      Demonstration and Evaluation of a Microfiche-Based Audio/Visual System.
- 119      Training Requirements for the Naval Technical Information Presentation Program: A Needs Assessment.
- 120      Foreign Military Training Management Information System.

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- 121      Precommissioning Training.
- 122      Cost/Benefit Analysis of the Instructional Systems Development Plan.
- 123      Description of Selected Training Appraisal Programs Within the Naval Education and Training Command.
- 124      Navy-Wide Training and Education Record System (TERS): a Feasibility and Interest Assessment Study.
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